

Serving Scientists

SERVA
Electrophoresis

Catalog 2014

Biochemicals A-Z

Sample Preparation

Electrophoresis

Collagenase & Neutral Protease

Life Sciences

Enzymology

Microscopy

Ion Exchange Media



SERVA

Electrophoresis

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For more than 60 years,
SERVA has been providing innovative products
and services to the research
community in the life sciences market.



Serving Scientists

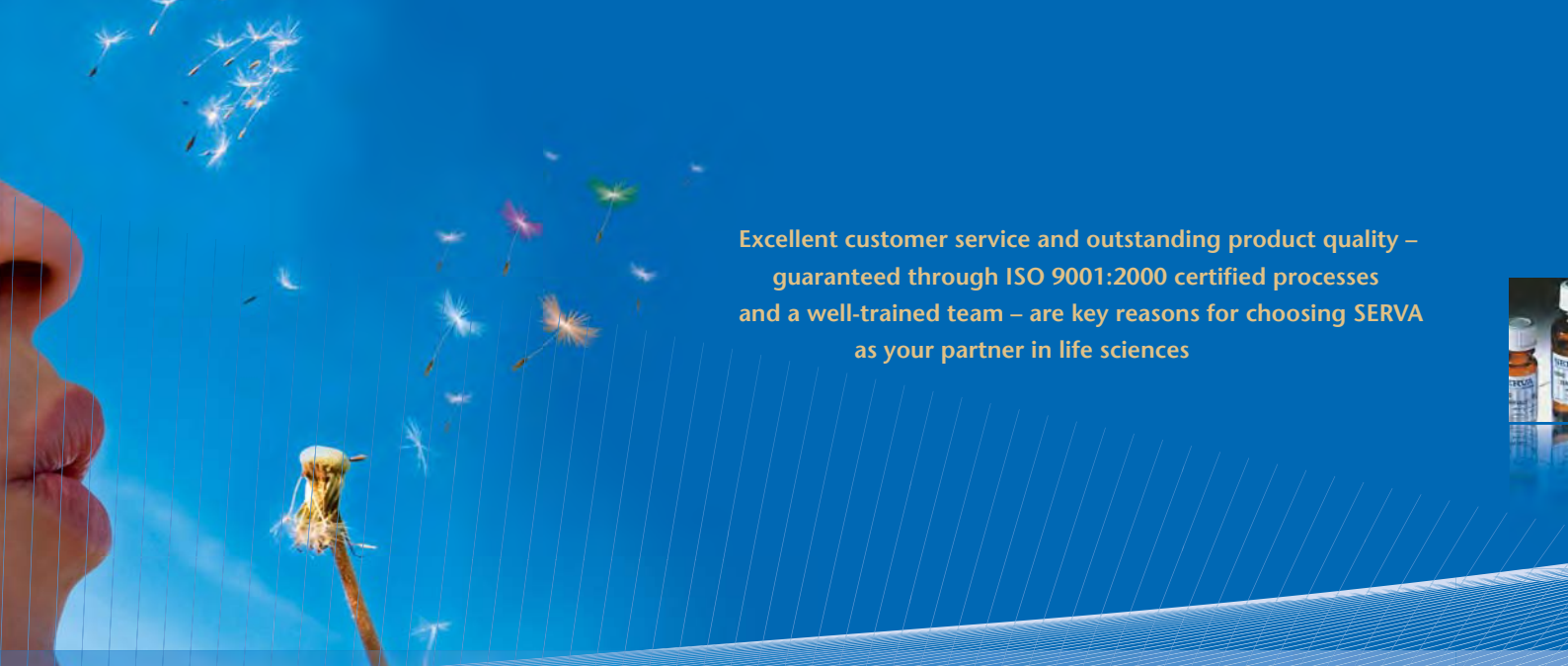
Offering a portfolio of more than 2,500 products, SERVA is serving life scientists in academic research and commercial organizations, worldwide. Our products help to proceed in the laboratory and to simplify the day-to-day work flow for researchers – a comprehensive assortment covering cellular and protein analysis, biochemistry, enzymology, microbiology, microscopy, bioseparation and more.

SERVA Serving Scientists – as recognized leader in providing innovative solutions and technical support, technical competence and total quality management are our basis for continuous improvement and service. Our policy is to pursue the highest standards in product quality, workplace safety and responsibility for the environment we live in. We dedicate expertise and integrity to guarantee consistent product performance and continuity of supply. SERVA is ISO 9001:2008 certified.

SERVA Today – Serving the Scientist

SERVA was founded in 1953 in Heidelberg, Germany, to fulfill the growing demand of the life science research community for excellent quality biochemical reagents in a variety of convenient sizes. Now, after more than six decades, SERVA is the leading and well-known supplier of a broad assortment of life science research products, worldwide. It has always been our mission to focus on customer needs while supplying products of consistent and unparalleled quality.





Excellent customer service and outstanding product quality – guaranteed through ISO 9001:2000 certified processes and a well-trained team – are key reasons for choosing SERVA as your partner in life sciences



SERVA product range and new products

Biochemicals A - Z

SERVA offers a broad range of biochemicals listed in the section "Biochemicals A-Z". All SERVA products are subject to stringent quality control to meet the specifications, as stated in the Certificate of Analysis provided with each product shipped. Based on the Total Quality Management System, certified ISO 9001:2008, each step in the process of materials management is recorded and documented, lot by lot.

Sample Preparation

Reliable, efficient and easy sample preparation is one of the most crucial steps for achieving optimal and reproducible results in all tasks of protein and nucleic acid analysis. SERVA reagents for sample preparation include Detergents, Protease Inhibitors, Phosphatase Inhibitors, Enzymes and Dialysis Tubings. Additionally, SERVA offers highly user-friendly kits, serving as tools for protein isolation, purification and quantification like SERVA *BluePrep* Kits, IMAC and Glutathione agarose resins, CentriPure and CentriSpin Gel Filtration Columns and Kits for Protein Quantification.

Electrophoresis

As the leading manufacturer of speciality reagents for isoelectric focusing, SERVA has expertise in providing SERVLYT™ PRECOTES™ precast gels, FocusGels and SERVLYT™ carrier ampholytes. We have expanded the range by introducing precast mini slab gels SERVAGel™ TG PRiME™ (10 x 10 cm) for SDS PAGE and for Clear and Blue Native PAGE. HPE™ - „High Performance Electrophoresis“ is the key technology resolving complex proteome samples in 2D PAGE offering gel strips, large-format SDS gels and the unique HPE™ Tower System. All precast gels are manufactured in Heidelberg. Want to achieve best results in preparing buffers and gels? Use SERVA's new range of „electrophoresis grade“ reagents, featuring performance-tested products. When it comes to sensitive detection using fluorescent staining check out SERVA Lightning Red and SERVA Purple suited for 1D and 2D applications. Quantitative proteomics approaches are supported by the ICPL™ isotopic labelling technology. The „BlueLine“ series provides equipment for electrophoresis and laboratory use.



Collagenase and Neutral Protease

SERVA Collagenase NB qualities are particularly suitable for various tissue isolation applications. The application of pharmaceutical manufacturing standards at our partner Nordmark GmbH & Co KG (Uetersen/Germany) guarantees stringent quality control, reliable lot-to-lot consistency and excellent product performance. TSE safety of the fermentation product has been certified by the European authorities, EDQM and by the supplier's certificate of origins.

Life Sciences

The range of molecular biology grade reagents is well established. These reagents are guaranteed DNase and RNase free. The ready-to-use buffer solutions save you time and labor and guarantee best results. Only high quality, application proved reagents are used. The new Cyanase™ Nuclease is ideal for pre-PCR DNA clean-up. For cell culture applications SERVA offers the new range of amino acids "cell culture grade".

Enzymology

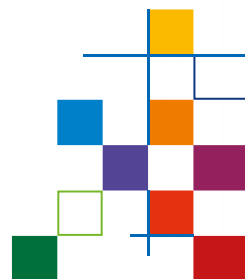
SERVA has continuously extended its range of enzymes and enzyme inhibitors and substrates. More than 60 highly purified enzyme preparations and a variety of coenzymes, cofactors and nucleotides necessary to perform enzymatic assays are now available.

Microscopy

SERVA has been known for many years as a supplier of high-quality reagents for electron and light microscopy. The section "Microscopy" includes many reagents for fixation, dehydration, embedding, cutting, staining and contrasting.

Ion Exchange Media

SERVA is a well-known and established supplier of ion exchange media. We offer a complete range of DOWEX™ anion and cation exchange resins. Our SERDOLIT™ line includes mix-bed ion exchange, PAD adsorber and chelating resins. Ion exchangers are produced for technical purposes (practical grade), the analytical grade qualities are purified by our proprietary method making them suitable for biochemical applications.



The SERVA Website

Advantages to the visitor

Navigation - crisp & clear - taking you to:

- Up-to-date product information
- Download centre for manuals, Technical Notes, brochures etc.
- Current information about SERVA
(List of Distributors, Events, Jobs at SERVA etc.)

Home

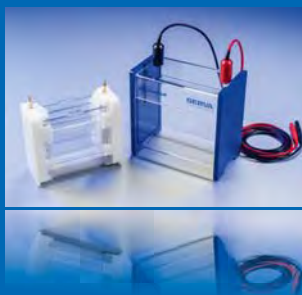
Annotations for the Home page:

- Quick search
- A - Z product choice
- Chapter selection
- Information about new products
- Distribution lines
- The company SERVA
- Comfort login
- Current information about exhibitions, promotions, new jobs etc.

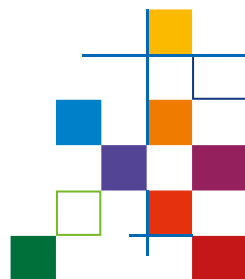
Product information

Annotations for the Product information page:

- Current navigation
- Complete product entry
- Selection subchapters
- Direct download of specifications, manuals, etc.
- Information about new products
- Download manuals, Technical Notes, etc. as PDF file
- Product inquiry
- Structural formula, product figures
- Ordering information incl. catalog number and size



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■ **ABTS**

see 14364 2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)-2NH₄-salt, page 16, 343

■ **Acarbose from *Actinoplanes* sp. ca. 100 FIP-AIU/mg**
contact dried, amorph

(O-4,6-(dideoxy-4-[[[1S-(1 α , 4 α , 5 β , 6 α)]-4,5,6-trihydroxy-3-(hydroxymethyl)-2-cyclohexene-1-yl]amino]- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-O- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-D-Glucose)
C₂₅H₄₀O₁₈N M_r 645.6 $\blacklozenge$ CAS [56180-94-0]

EINECS 260-030-7 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29400000

Ca. 100 FIP-AIU/mg (FIP- α -amylase inhibitor unit) using porcine pancreatic α -amylase.

This highly purified acarbose, a pseudotetrasaccharide, inhibits α -amylases [EC 3.2.1.1], α -glucosidases [EC 3.2.1.3], saccharases [EC 3.2.1.48]. Used e.g. in enzymatic conversions and assays where α -amylases, α -glucosidases or saccharases interfere with the reaction.

Purity (HPLC)	95.0 - 101.0
Solubility in water	1400 g/L at 20 °C
Total aerobic microbial count (TAMC)	max. 1000 CFU/g
Total combined yeasts/mould count (TYMC)	max. 100 CFU/g

Unit definition: 1 FIP- α -amylase inhibitor unit (AIU) is the amount of acarbose which will inhibit 2 FIP-units of α -amylase by 50 % at pH 6.8 and 25 °C after previous incubation.

References:

- Truscheit, E. et al. (1981): Chemistry and Biochemistry of Microbial α -Glucosidase Inhibitors; Angew. Chem. Int. Ed. Engl. **20**, 744-761
- Bischoff, H. (1994): Pharmacology of α -Glucosidase Inhibition; Eur. J. Clin. Inv. **24**, suppl. 3, 3-10

Cat.No.	Size	EUR
10017.01	100 mg	17,50
10017.02	500 mg	35,50
10017.03	1 g	58,00

■ **2-Acetamido-2-deoxy-D-glucose**

see 10290 N-Acetyl-D-glucosamine, page 3

■ **5-Acetamido-3,5-dideoxy-D-glycero- D-galacto-2-nonulosonic acid**

see 10465 N-Acetylneuraminic acid, page 3

■ **Acetic acid 100 % analytical grade**

C₂H₄O₂ $\blacklozenge$ M_r 60.05 $\blacklozenge$ CAS [64-19-7]



DANGER
H226-H314 $\blacklozenge$ GGVSE/ADR 8 II UN2789 $\blacklozenge$ IATA 8 II UN2789
 $\blacklozenge$ EINECS 200-580-7 $\blacklozenge$ WGK 1 L $\blacklozenge$ HS 29152100

Assay (GC)	min. 99.9 %
Density (20 °C)	1.05

Cat.No.	Size	EUR
45633.01	1 L	19,00
45633.02	2,5 L	40,00

■ **Aceton research grade**

C₃H₆O $\blacklozenge$ M_r 58.08 $\blacklozenge$ CAS [67-64-1]



DANGER
H225-H319-H336 $\blacklozenge$ EG-Index 606-001-00-8 $\blacklozenge$ GGVSE/
ADR 3 II UN1090 $\blacklozenge$ IATA 3 II UN1090 $\blacklozenge$ EINECS 200-662-2 $\blacklozenge$
WGK 1 L $\blacklozenge$ HS 29141100

Assay (GC)	min. 99.5 %
Density (20 °C)	0.790 - 0.792
Water	max. 0.2 %
Heavy metals	max. 2 ppm

Cat.No.	Size	EUR
45632.01	1 L	16,00
45632.02	2,5 L	29,00

■ **Acetonitrile Far UV for HPLC**

C₂H₃N $\blacklozenge$ M_r 41.0 $\blacklozenge$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\blacklozenge$ MAK/TRK 20 ml/m³; 34 mg/m³ $\blacklozenge$ EG-Index 608-001-00-3 $\blacklozenge$ GGVSE/
ADR 3 II UN1648 $\blacklozenge$ IATA 3 II UN1648 $\blacklozenge$ WGK 2L $\blacklozenge$ HS 29269095

Assay	min. 99.9 % (GC)
Density (20 °C)	0.782
Boiling point	81.6 °C
Refractive Index	1.344

Maximum Impurity Levels:

Water	max. 0.02 %
Acidity	max. 0.0005 mEq/g
Residue on Evaporation	max. 0.0005 %

Minimum Transmission Levels

1 cm cell compared against HPLC-water	
200 nm	min. 80.0 %
210 nm	min. 90.0 %
220 nm	min. 98.0 %
230 nm	min. 99.0 %

Cat.No.	Size	EUR
45606.01	2,5 L	95,00

■ **Acetonitrile for HPLC gradient grade**

C₂H₃N $\blacklozenge$ M_r 41.05 $\blacklozenge$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\blacklozenge$ MAK/TRK 20 ml/m³; 34 mg/m³ $\blacklozenge$ EG-Index 608-001-00-3 $\blacklozenge$ GGVSE/
ADR 3 II UN1648 $\blacklozenge$ IATA 3 II UN1648 $\blacklozenge$ EINECS 200-835-2 $\blacklozenge$ WGK 2L $\blacklozenge$
HS 29269095

Assay	min. 99.95 (GC)
Density	0.782
Boiling point	81.6 °C
Refractive index	1.3430 - 1.3450

Maximum Impurity Levels

Water	max. 0.03 %
Acidity	max. 0.001 %
Residue on evaporation	max. 0.0004 %

Maximum Transmission Levels

1 cm cell against HPLC-water	
200 nm	min. 93.0 %
210 nm	min. 96.0 %
220 nm	min. 97.0 %
230 nm	min. 98.0 %
240 nm	min. 99.0 %

Cat.No.	Size	EUR
45607.01	2,5 L	75,00

■ **Acetonitrile for HPLC**

C₂H₃N $\blacklozenge$ M_r 41.0 $\blacklozenge$ CAS [75-05-8]



DANGER
H225-H302-H312-H319-H332 $\blacklozenge$ MAK/TRK 20 ml/m³; 34 mg/m³ $\blacklozenge$ EG-Index 608-001-00-3 $\blacklozenge$ GGVSE/
ADR 3 II UN1648 $\blacklozenge$ IATA 3 II UN1648 $\blacklozenge$ EINECS 200-835-2 $\blacklozenge$ WGK 2L $\blacklozenge$
HS 29269095

Assay (GC)	min. 99.9 %
Density (20 °C)	0.782 - 0.783
Boiling point	81.6 °C
Refractive Index	1.3430 - 1.3450

Maximum Impurity Levels:

Water	max. 0.005 %
Residue on Evaporation	max. 0.0005 %

Minimum Transmission Levels

1 cm cell compared against HPLC-water	
210 nm	min. 93.0 %
240 nm	min. 99.0 %

Exportable in bulk quantities only.

Cat.No.	Size	EUR
45605.01	2,5 L	59,00

N-Acetyl-D-glucosamine research grade

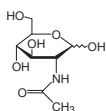
(2-Acetamido-2-deoxy-D-glucose)

$C_8H_{15}NO_6$ ♦ M_r 221.2 ♦ CAS [10036-64-3]

EINECS 233-115-1 ♦ WGK 1 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 98.0 %
 $[\alpha]_{20}^{\circ}$ C/D (c= 2 in water) +39.0 ° to 43.0 °



Cat.No.	Size	EUR
10290.02	25 g	33,00

Acetyl-L-leucyl-L-leucyl-L-argininal

see 51867 Leupeptin, page 63, 139, 352

β-Acetyldigoxin research grade

$C_{43}H_{86}O_{15}$ ♦ M_r 823.0 ♦ CAS [5355-48-6]



DANGER

H300-H330-H373 ♦ GGVSE/ADR 6.1 I UN2811 ♦

IATA 6.1 I UN2811 ♦ EINECS 226-337-5 ♦ WGK 3L ♦

HS 29389010

Ph. Eur.

Assay (HPLC) 97.0 - 102.0 %
 Loss on drying max. 1.5 %

Cat.No.	Size	EUR
77005.01	50 mg	77,00

N-Acetylneuraminic acid research grade

(NANA; 5-Acetamido-3,5-dideoxy-D-glycero- D-galacto-2-nonulosonic acid; Sialic acid)

$C_{11}H_{19}NO_9$ ♦ M_r 309.3 ♦ CAS [131-48-6]

EINECS 205-023-1 ♦ WGK 1 ♦ HS 29241900

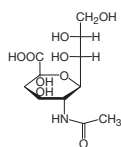
Storage temperature +2 °C to +8 °C

Synthetic. Assay with thiobarbituric acid.

Assay (titr.) min. 98.0 %
 $[\alpha]_{25}^{\circ}$ C/D (c=1 in water) -32 ° ± 2 °

References:

- Warren, L. (1959) J. Biol. Chem. **239**, 1971-5
- Hammond, K.S. & Papermaster, D.S. (1976) Anal. Biochem. **74**, 292-7



Cat.No.	Size	EUR
10465.02	100 mg	55,00

Acetylthiocholine-iodide research grade

$C_7H_{16}N^+OS^-I^-$ ♦ M_r 289.2 ♦ CAS [1866-15-5]



DANGER

H301-H312 ♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 217-474-1 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Cholinesterase substrate (1). The liberated thiol group is estimated using 5,5'-dithiobis(2-nitrobenzoic acid) (2).

Assay (HPLC) min. 98.0 %

References:

- Ellman, G.L. et al. (1961) Biochem. Pharmacol. **7**, 88-95
- Ellman, G. & Callaway, E. (1961) Nature **192**, 1216-7

Cat.No.	Size	EUR
10570.01	1 g	16,00
10570.02	5 g	44,00
10570.03	25 g	178,00

Achromycin-HCl

see 35866 Tetracycline-HCl, page 111, 285

Acid Black 1

see 12310 Amido Black 10 B, page 11, 240

Acid Blue 15

see 21490 SERVA Blue W, page 91, 242

Acid Blue 83

see 35051 SERVA Blue R, page 91, 242

Acid Blue 90

see 35050 SERVA Blue G, page 91, 242

Acid Blue 93

see 13645 Aniline Blue, page 13, 369

Acid Red 112

see 33429 Ponceau S, page 83, 241, 372

Acid Red 14

see 14410 Azorubin, page 16, 369

Acid Red 87

see 21005 Eosin Y-Na-salt, page 42, 370

Acid Violet 17

see 35072 SERVA Violet 17, page 97, 243

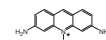
Acid Violet 19

see 34597 Fuchsin acid, page 46, 371

Acriflavine-HCl research grade

(Trypaflavine HCl)

CAS [8063-24-9]



DANGER

H302-H318-H411 ♦ GGVSE/ADR 9 III UN3077 ♦

IATA 9 III UN3077 ♦ WGK 2L ♦ HS 32041300

A mixture of the hydrochlorides of 3,6-diamino-10- methylacridinium chloride and 3,6-diaminoacridine.

Cat.No.	Size	EUR
10671.01	25 g	40,00
10671.02	100 g	115,00

Acrylamide 2X research grade

C_3H_5NO ♦ M_r 71.1 ♦ CAS [79-06-1]



DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H

372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK 0,03mg/m³ ♦

EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Standard quality, applicable to general electrophoretic separations.

Assay (HPLC) min. 98.0 %
 A 290 nm max. 0.7 (5 %)
 pH 5.0 - 8.0 (5 %)
 Conductivity (μS/cm) max. 100 (40 %)
 Acrylic acid (titr.) max. 0.03 %

Cat.No.	Size	EUR
10675.01	100 g	21,00
10675.02	1 kg	51,00

Acrylamide 4X analytical grade

C_3H_5NO ♦ M_r 71.1 ♦ CAS [79-06-1]



DANGER

H301-H312-H315-H317-H319-H332-H340-H

350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03 mg/m³ ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

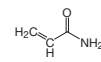
Storage temperature +2 °C to +8 °C

Quality of analytical grade, applicable to all electrophoresis techniques.
 Recrystallized.

Polymerizing time: max. 30 min. (3 mM TEMED / 3 mM APS, 15 % gel).

Assay (HPLC) min. 99.0 %
 A 290 nm max. 0.6 (5 %)
 pH 5.0 - 8.0 (5 %)
 Conductivity (μS) max. 20 (40 %)
 Content of free acrylic acid max. 0.002 %

Cat.No.	Size	EUR
10674.02	100 g	30,00
10674.03	1 kg	181,00



■ **Acrylamide 4X** molecular biology gradeC₃H₅NO ♦ M_r 71.1 ♦ CAS [79-06-1]**DANGER**

H302-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03mg/m³ ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦

IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

DNase and RNase: non-detectable. Special quality for use in molecular biological applications as well as all electrophoresis techniques.

Assay (GC)	min. 99.0 %
A 290 nm	max. 0.6 (5 %)
pH	5.0 - 8.0 (5 %)
Conductivity (μS)	max. 20 (40 %)
Content of free acrylic acid	max. 0.002 %

Cat.No.	Size	EUR
10678.02	100 g	40,00
10678.03	1 kg	240,00

■ **Acrylamide 4X solution** (40 % w/v)**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution contains 40 % (w/v) highly purified acrylamide in deionized water.

A 290 nm	max. 0.6 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	max. 100
Content of free acrylic acid	max. 0.03 %

Cat.No.	Size	EUR
10677.01	1 L	79,00

■ **Acrylamide/Bis Solution, 19:1** (40 % w/v), 5 % C**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylenebisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm	< 0.7 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	< 100
Content of free acrylic acid	< 0.03 %

Cat.No.	Size	EUR
10679.01	500 ml	29,00
10679.02	4 x 500 ml	96,00
10679.03	1 L	52,00

■ **Acrylamide/Bis Solution, 29:1** (30 % w/v), 3.3 % C**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylenebisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm	< 0.7 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	< 100
Content of free acrylic acid	< 0.03 %

Cat.No.	Size	EUR
10687.01	500 ml	26,00
10687.02	4 x 500 ml	89,00
10687.03	1 L	46,00

■ **Acrylamide/Bis Solution, 29:1** (40 % w/v), 3.3 % C**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylenebisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm	< 0.7 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	< 100
Content of free acrylic acid	< 0.03 %

Cat.No.	Size	EUR
10680.01	500 ml	29,00
10680.02	4 x 500 ml	96,00
10680.03	1 L	52,00

■ **Acrylamide/Bis Solution, 37.5:1** (30 % w/v), 2.6 % C**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylenebisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm	< 0.7 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	< 100
Content of free acrylic acid	< 0.03 %

Cat.No.	Size	EUR
10688.01	500 ml	26,00
10688.02	4 x 500 ml	89,00
10688.03	1 L	46,00

■ **Acrylamide/Bis Solution, 37.5:1** (40 % w/v), 2.6 % C**DANGER**

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylenebisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm	< 0.7 (5 %)
pH	6.0 - 8.0 (5 %)
Conductivity (μS)	< 100
Content of free acrylic acid	< 0.03 %

Cat.No.	Size	EUR
10681.01	500 ml	29,00
10681.02	4 x 500 ml	96,00
10681.03	1 L	52,00

■ **Actidione®**

see 10700 Cycloheximide, page 33, 283

■ **Actinase E**see 33635 Pronase E from *Streptomyces griseus* min. 6.0 DMC-U/mg, page 84, 291, 338

Products for Isoelectric Focusing:
see special chapter at p. 190

■ Actinomycin D cryst. research grade

(Dactinomycin; Actinomycin C₁)

C₆₂H₈₆N₁₂O₁₆ ♦ M_r 1255.5 ♦ CAS [50-76-0]



DANGER

H300 ♦ GGVSE/ADR 6.1 II UN2811 ♦

IATA 6.1 II UN2811 ♦ EINECS 200-063-6 ♦

WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Chromopeptide with antibiotic activity. Contains 2 cyclic peptides bound to the chromophoric phenoxazine ring. Binds specifically to the minor groove of the DNA double helix, and thus prevents it from being a template for RNA synthesis. Antineoplastic agent which inhibits the growth of rapidly dividing cells. Induces apoptosis in cancer cells. Used as a selective agent in cell culture.

Assay (HPLC) min. 95.0 %

References:

1. Meienhofer, B. & Atherton, E. (1977) Adv. Appl. Microbiol. **16**, 203
2. Kleef, J. et al. (2000) Int. J. Cancer **86**, 399-407
3. Narita, Y. et al. (2000) Cancer Chemother. Pharmacol. **45**, 149-56

Cat.No.	Size	EUR
10710.01	5 mg	24,00
10710.02	25 mg	85,00

■ Activated charcoal

see 30890 Norit® A, page 73

■ Adenine analytical grade

(6-Aminopurine)

C₅H₅N₅ ♦ M_r 135.1 ♦ CAS [73-24-5]



DANGER

H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦

IATA 6.1 III UN2811 ♦ EINECS 200-796-1 ♦ WGK 1 ♦ HS 29335995

Assay (titr.) 98.0 - 102.0 %

Cat.No.	Size	EUR
10739.02	25 g	32,00
10739.03	100 g	102,00



■ Adenosine research grade

(9-β-D-Ribofuranosyladenine)

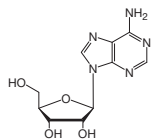
C₁₀H₁₃N₅O₄ ♦ M_r 267.2 ♦ CAS [58-61-7]

EINECS 200-389-9 ♦ WGK 1 ♦ HS 29389090

Assay (HPLC) min. 97.0 %

Water (Loss on drying) max. 0.5 %

Cat.No.	Size	EUR
10770.02	25 g	40,00



■ Adenosine-5'-diphosphate-Na₂-salt research grade

(ADP)

C₁₀H₁₃N₅O₁₀P₂Na₂ ♦ M_r 471.2 ♦ CAS [16178-48-6]

EINECS 240-314-7 ♦ WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C

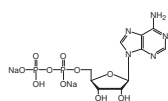
From yeast ribonucleic acid.

Assay (HPLC) min. 94.0 %

ATP max. 1.0 %

Water (KF) max. 7.0 %

Cat.No.	Size	EUR
10800.02	1 g	39,00
10800.03	5 g	149,00



■ Adenosine-5'-phosphate-Na₂-salt analytical grade

(AMP)

C₁₀H₁₂N₅O₇PNa₂·7H₂O ♦ M_r 517.2 ♦ CAS [4578-31-8]

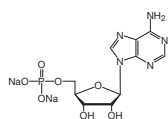
EINECS 224-961-2 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 99.0 %

Water (KF) max. 26.0 %

Cat.No.	Size	EUR
10883.01	5 g	35,00



■ Adenosine-5'-triphosphate-Na₂-salt cryst. research grade

(ATP)

C₁₀H₁₄N₅O₁₃P₃Na₂ ♦ M_r 551.1 ♦ CAS [987-65-5]

EINECS 213-579-1 ♦ WGK 1 ♦ HS 29389090

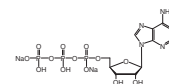
Storage temperature -15 °C to -25 °C

Assay (HPLC)

min. 98.0 %

Water (KF)

max. 8.0 %



Cat.No.	Size	EUR
10920.01	1 g	13,50
10920.02	5 g	19,00
10920.03	25 g	66,00
10920.04	100 g	212,00

■ Adhesive tape

HS 39269097

33 m x 9 mm x 0.15 mm. Especially suitable as spacer in the preparation of thin layer gels using the flap technique.

Cat.No.	Size	EUR
42927.01	1 piece	13,00

■ Adogen 464

see 37076 Trioctylmethylammonium chloride, page 114

■ ADP

see 10800 Adenosine-5'-diphosphate-Na₂-salt, page 5, 341

■ Adriamycin HCl Solution

(Doxorubicin-HCl; 14-Hydroxydaunomycin-HCl)

DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C *

Anthracycline antibiotic, anti-neoplastic agent (1, 2). Inhibits DNA and RNA synthesis by forming complexes with DNA. Modified spectrofluorometric assay for DNA (3).

Composition 2 mg/ml in 0.9 % NaCl
pH 2.7 - 3.3

References:

1. Tritton, T.R. & Yee, G. (1982) Science **217**, 248-50
2. Leto, G. et al. (1990) Anticancer Res. **10**, 265-9
3. Kennedy, D.G. et al. (1987) Anal. Biochem. **167**, 124-7

Cat.No.	Size	EUR
11010.01	1 ml	35,00
11010.02	5 ml	95,00

■ AEBSF-HCl research grade

(4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride)

C₈H₁₀FNO₂S·HCl ♦ M_r 239.7 ♦ CAS [30827-99-7]

WGK 1 ♦ HS 29214900

Storage temperature +2 °C to +8 °C

Irreversible inhibitor of thrombin and other serine proteases (e.g. chymotrypsin, kallikrein, plasmin, proteinase K, trypsin). Inhibits by acylation of the active site of the enzyme. AEBSF is water-soluble and much less toxic than PMSF and DFP. Aqueous solutions are stable between pH 5-6; limited stability above pH 7.5.

Assay (HPLC) min. 98.0 %

References:

1. Walsmann, P. et al. (1972) Acta biol. med. germ. **28**, 577-585
2. Marwardt, F. et al. (1973) Thrombosis Res. **2**, 343-348
3. Taylor, J.A. et al. (1995) Immunology **86**, 629-635

Cat.No.	Size	EUR
12745.02	500 mg	105,00
12745.03	1 g	180,00

■ Affinity Chromatography

see Chapter Sample Preparation, page 129

■ Aerosporin

see 47976 Polymyxin-B-sulfate, page 82, 282

■ **Agar Agar SERVA** powder analytical grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Highly purified. Suitable for immunodiffusion.

Gel strength (g/cm ² , 1.5 % gel)	min. 600
Point of solidification	39 - 43 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.5
525 nm	max. 0.45
Loss on drying	max. 10.0 %
Ash	max. 4.0 %
pH in water (60 °C)	6.0 - 7.0

Cat.No.	Size	EUR
11393.02	100 g	44,00
11393.03	250 g	79,00
11393.04	1 kg	245,00

■ **Agar Agar SERVA high gel-strength** powder research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for *in vitro* culture of plants or bacteriology, no turbidity with phosphates.

Gel strength (g/cm ² , 1.5 % gel)	min. 700
Point of solidification	32 - 35 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.2
525 nm	max. 0.1
Loss on drying	max. 10.0 %
Ash	max. 4 %
pH 1.5 % in water (60 °C)	6.0 - 8.0

Cat.No.	Size	EUR
11396.02	250 g	53,00
11396.03	1 kg	149,50
11396.04	5 kg	575,00

■ **Agar Agar SERVA Kobe I** in stripes, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Threadlike, bleached; tested for use in nutrient media. Economic alternative to cat. no. 11392.

Gel strength (g/cm ² , 1.5 % gel)	> 400
Point of solidification	30 - 40 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.5
525 nm	max. 0.45
Loss on drying	max. 25.0 %
Ash	max. 6.5 %
pH 1.5 % in water (60 °C)	5.0 - 8.0

Cat.No.	Size	EUR
11395.03	1 kg	85,00
11395.04	5 kg	365,00

■ **Agar Agar SERVA Kobe I** powder, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for bacteriology.

Gel strength (g/cm ² , 1.5 % gel)	min. 800
Point of solidification	35 - 43 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.5
525 nm	max. 0.45
Loss on drying	max. 15.0 %
Ash	max. 1.5 %
pH 1.5 % in water (60 °C)	6.0 - 8.0

Cat.No.	Size	EUR
11392.03	1 kg	95,00
11392.04	5 kg	425,00

■ **Agar Substitute**

see 22168 Gelrite®, page 49, 307, 309

■ **Agarose SERVA** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Agarose with low EEO for analytical and preparative gel electrophoresis and blotting of DNA/RNA fragments > 500 bp.

Gelling temperature (1.5 %)	34 - 38 °C
Gel strength (1.5 %)	> 1100 g/cm ²
Electro endosmosis (EEO)	0.05 - 0.13

Cat.No.	Size	EUR
11380.01	25 g	35,00
11380.02	100 g	99,00
11380.03	250 g	215,00
11380.05	500 g	390,00

■ **Agarose SERVA Wide Range** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

For analytical and preparative electrophoresis and blotting of DNA/RNA fragments between 250 and 23,000 bp, PCR products, preparation of plasmids, screening and cleaning.
DNase/RNase-free.

Gelling temperature (1.5 %)	34 - 39 °C
Gel strength (1.5 %)	min. 1200 g/cm ²
Electro endosmosis (EEO)	max. 0.13

Cat.No.	Size	EUR
11406.01	250 g	95,00
11406.02	500 g	170,00
11406.03	1 kg	325,00

■ **Agarose SERVA for DNA electrophoresis** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of DNA fragments between 1000 and 20,000 bp, also suitable for pulsed field electrophoresis. Each lot is tested for the absence of *EcoRI* inhibition.

Gelling temperature (1.5 %)	34 - 39 °C
Gel strength (1.5 %)	min. 1700 g/cm ²
Electro endosmosis (EEO)	max. 0.13

Cat.No.	Size	EUR
11404.02	25 g	40,00
11404.03	100 g	75,00
11404.04	250 g	135,00
11404.07	500 g	235,00
11404.05	1 kg	460,00

■ **Agarose SERVA low melting** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative nucleic acid electrophoresis of DNA/RNA fragments >500 bp. Highly efficient recovery of DNA fragments at low temperature for subsequent in-gel manipulations like restriction analysis or ligation reactions.

Gelling temperature (1.5 %)	max. 31 °C
Gel strength (1.5 %)	> 200 g/cm ²
Electro endosmosis (EEO)	0.05 - 0.14

Cat.No.	Size	EUR
11408.01	5 g	39,00
11408.02	25 g	145,00
11408.03	100 g	465,00

■ Agarose SERVA Premium molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative gel electrophoresis of DNA/RNA fragments > 500 bp, recovery of DNA fragments for further modifications (restriction analysis, ligation reactions), blotting of nucleic acids. Special quality tested for applications in molecular biology.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size	EUR
11381.01	25 g	45,00
11381.02	100 g	122,00
11381.03	250 g	265,00

■ Agarose SERVA Premium low melting molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For efficient separation of DNA/RNA fragments > 500 bp, best for in-gel enzymatic processing like restriction analysis, ligation reactions, PCR and others. Ideal for digestion by agarase enzymes, making it very easy to recover or to analyse large DNA fragments by cloning or other enzymatic applications. Special tested quality for applications in molecular biology.

Gelling temperature (1.5 %) 24 - 28 °C
Gel strength (1.5 %) > 500 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11382.01	25 g	165,00
11382.02	100 g	425,00
11382.03	250 g	950,00

■ Agarose SERVA for PCR molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp; special quality tested for applications in molecular biology. High gel strength for better handling and enhanced visibility due to improved clarity of the gel.

Gelling temperature (1.5 %) 28 - 34 °C
Gel strength (1.5 %) > 600 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11383.01	25 g	95,00
11383.02	100 g	315,00
11383.03	250 g	670,00

■ Agarose SERVA for PCR low melting molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp. Special quality tested for applications in molecular biology. Best for fine resolution at agarose concentrations ranging from 1.8 % up to 4.5 %. Best for in-gel enzymatic processing. Ideal for digestion by agarase enzymes. Easy to recover small DNA fragments for subsequent analysis or for enzymatic modifications.

Gelling temperature (1.5 %) ca. 26 °C
Gel strength (1.5 %) > 200 g/cm²
Electro endosmosis (EEO) ≤ 0.10

Cat.No.	Size	EUR
11384.01	25 g	125,00
11384.02	100 g	425,00
11384.03	250 g	895,00

■ Agarose SERVA high EEO

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Special preparation for immunoelectrophoresis (esp. precipitation) with relatively high electroendosmosis and low gelling point.

Gelling temperature (1.5 %) 34 - 39 °C
Gel strength (1.5 %) > 1300 g/cm²
Electro endosmosis (EEO) 0.23 - 0.27

Cat.No.	Size	EUR
11397.02	25 g	39,50
11397.03	100 g	122,00
11397.04	250 g	247,00

■ Agarose SERVA standard EEO

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Standardized preparation for most uses in electrophoresis, esp. for immunoelectrophoresis (immunodiffusion) and zone electrophoresis.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.16 - 0.19

Cat.No.	Size	EUR
11400.02	25 g	37,00
11400.03	100 g	112,00
11400.04	250 g	226,00
11400.05	1 kg	797,00

■ Agarose SERVA neutral for IEF

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Premium grade for isoelectric focusing. Chemically treated agarose to neutralize residual negative charge sites, virtually eliminating electroendosmosis.

Gelling temperature (1.5 %) 38 - 43 °C
Gel strength (1.5 %) > 800 g/cm²
Electro endosmosis (EEO) 0

Cat.No.	Size	EUR
11402.02	5 g	165,00
11402.03	25 g	690,00

■ Agarose SERVA Tablets, 0.5 g/tablet molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

Agarose pressed into tablets of 0.5 g each. For analytical and preparative electrophoresis of DNA fragments between 200 and 20,000 bp. Special quality tested for applications in molecular biology.

There is no need to weigh the agarose. Just simply disperse the requested number of tablets in running buffer for 5 minutes at room temperature and then heat the suspension in a microwave until the material is dissolved.

The achieved gel volume per tablet for different agarose concentrations is listed below:

% agarose	gel volume/tablet
0.5 %	100.0 ml
0.75 %	66.7 ml
1.0 %	50.0 ml
1.5 %	33.3 ml
2.0 %	25.0 ml

Gel. temp. (1.5 %) 34 - 39 °C
Gel strength (1.5 %) > 1000 g/cm²
Electro endosmosis (EEO) ≤ 0.13

Cat.No.	Size	EUR
11405.01	100 g	95,00
11405.02	500 g	395,00

■ Ala

see 11482 L-Alanine, page 8

■ **L-Alanine** research grade

(Ala; 2-Aminopropanoic acid)
 $C_3H_7NO_2$ ♦ M_r 89.1 ♦ CAS [56-41-7]

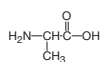
EINECS 200-273-8 ♦ WGK 1L ♦ HS 29224985

Ph.Eur. Non-essential amino acid, which can be synthesized in mammalian cells from pyruvic acid and ammonium ions. For use in bacteriology and tissue culture.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm

References:

1. Römpp Chemie Lexikon, 10th ed. 1996-1999, Georg Thieme Verlag Stuttgart, New York
2. Müller-Esterl, W. (2011) Biochemie, 2nd ed., Spektrum Akademischer Verlag, Heidelberg



Cat.No.	Size	EUR
11482.02	100 g	39,00

■ **Albumin bovine, DNase/RNase-free** molecular biology grade

M_r ca. 67 000 ♦ CAS [9048-46-8]

HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin manufactured by a proprietary heat shock precipitation and ultrafiltration process. Especially suitable for use in hybridization and nucleic acid based assays.

Assay (CAF) > 97.0 %
 pH (10 % in H₂O) 6.5 - 7.4
 DNase/RNase not detected

Cat.No.	Size	EUR
11967.01	5 g	20,00
11967.02	25 g	56,00
11967.03	100 g	168,00

■ **Albumin bovine** cryst. lyophil.

(BSA; Bovine serum albumin)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

The purest form of our bovine albumins. Manufacturing includes a proprietary heat-shock fractionation process, ion exchange treatment and triple sequential crystallization, resulting in an extremely pure product. Best suited for use in highly sensitive systems requiring consistent protein background. Crystal form simplifies handling and weighing.

Assay (CAF) min. 99.0 %
 pH (7 % in H₂O) 5.0 - 5.4
 Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
11920.02	1 g	28,00
11920.05	5 g	100,00
11920.04	10 g	180,00
11920.06	50 g	651,00

■ **Albumin bovine Fraction V, pH 7.0** standard grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. Standard quality for many applications, e.g. as protein standard, growth promoter in serum-free media for the cultivation of animal cells, supplement in microbiological nutrient media, diluent/stabilizer in diagnostic systems, stabilizer of isolated enzymes and antibodies or blocking agent to prevent non-specific absorption.

Assay (CAF) min. 98.0 %
 pH (7 % in H₂O) 6.8 - 7.2
 Moisture (KF) max. 5.0 %
 Iron (µg/g, AA) max. 15
 IgG not detectable

Cat.No.	Size	EUR
11930.01	10 g	20,00
11930.02	25 g	39,00
11930.03	100 g	109,00
11930.04	500 g	435,00

■ **Albumin bovine Fraction V, pH 5.2** standard grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured in a similar way as cat. no. 11930 but with adjustment to pH 5.2 prior to lyophilization. Special quality for serology, antibody enhancement, bacterial and animal culture media.

Assay (CAF) min. 98.0 %
 pH (7 % in H₂O) 5.2 - 5.6
 Moisture (KFT) max. 5.0 %

Cat.No.	Size	EUR
11922.02	25 g	58,00
11922.03	100 g	185,00

■ **Albumin bovine modified Cohn Fraction V, pH 5.2** lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a modification of the Cohn procedure, including a proprietary heat-shock method and further purification steps by extensive membrane dialysis and filtration. Suitable as protein standard, in ELISA and blotting techniques, as diluent/stabilizer in diagnostic systems and stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF) min. 96.0 %
 pH (10 % in H₂O) 5.0 - 5.6

Cat.No.	Size	EUR
11941.01	25 g	45,00
11941.02	100 g	145,00

■ **Albumin egg** lyophil.

(Ovalbumin)

M_r ca. 45 000

HS 35021110

Storage temperature -15 °C to -25 °C

Assay (SDS-PAGE) min. 98.0 %
 Water (%) max. 6.0 %

Cat.No.	Size	EUR
11841.01	1 g	25,00
11841.02	5 g	100,00
11841.03	25 g	435,00

■ **Albumin bovine modified Cohn Fraction V, pH 7.0** lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a modification of the Cohn procedure, including a proprietary heat-shock method and further purification steps by extensive membrane dialysis and filtration. Suitable as protein standard, in ELISA and blotting techniques, as diluent/stabilizer in diagnostic systems and in serology and as stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF) min. 98.0 %
 pH (10 % in H₂O) 6.5 - 7.5
 Protease max. 0.005 U/mg

Cat.No.	Size	EUR
11943.01	25 g	32,00
11943.02	100 g	105,00
11943.03	500 g	395,00

■ Albumin bovine Fraction V receptor grade lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock fractionation with additional solvent treatment. Contains extremely low levels of heavy metals, alkaline earths, fatty acids, and low molecular weight impurities. First choice for diagnostic systems; excellent as a protective agents for enzymes, antibodies etc.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
Total lipids (mg/g)	max. 3.5
Fatty acids (mg/g)	max. 1
Iron (μg/g, AA)	max. 5
Heavy metals (μg/g, AA)	max. 20
Calcium (mg/g, AA)	max. 0.5
IgG	not detectable

Cat.No.	Size	EUR
11924.01	5 g	19,00
11924.02	25 g	65,00
11924.03	100 g	201,00
11924.04	500 g	795,00

■ Albumin bovine Fraction V, Protease-free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process; double heated to insure inactivation of proteolytic activity. Excellent for protease sensitive immunoassays. Useful as stabilizing agent for proteins or enzymes in buffers or for lyophilization. Stabilizer for long-term storage of highly diluted antibodies. Essential component for hybridization techniques. Blocking agent to prevent non-specific binding of proteins to microtiter wells in ELISA systems.

Assay (CAF)	min. 98.0 %
Protease (Casein hydrolysis)	not detectable
pH (7 % in H ₂ O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
IgG	not detectable

Cat.No.	Size	EUR
11926.01	5 g	21,00
11926.02	25 g	57,00
11926.03	100 g	190,00
11926.04	500 g	745,00

■ Albumin bovine Fraction V, Fatty Acid Free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock/solvent fractionation process. Suitable for in-vitro binding and transport studies and in diagnostic systems.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 - 7.2
Total lipids (mg/g)	max. 2
Fatty acids (mg/g)	max. 0.2
Moisture (KF)	max. 5.0 %

Cat.No.	Size	EUR
11932.01	5 g	37,00
11932.02	25 g	142,00
11932.03	100 g	478,00

■ Albumin bovine Fraction V, Protease and Fatty Acid free diagnostic grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin, especially designed for protease-sensitive immunoassays, such as RIA and EIA. Suitable as protein standard, diluent, enzyme stabilizer. Can be used also in hybridization and nucleic acid based assays as well as in fatty acid sensitive cell culture systems.

Assay (CAF)	min. 98.0 %
pH (10 % in H ₂ O)	6.5 - 7.5
Protease	max. 0.005 U/mg
Fatty acids	max. 0.01 %
IgG	not detected

Cat.No.	Size	EUR
11945.01	10 g	26,00
11945.02	25 g	52,00
11945.03	100 g	165,00
11945.04	500 g	675,00

■ Albumin bovine Low Hormone lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Albumin purity	> 97.0 %
Total protein	> 92.0 %
pH (10 % solution)	6.5 - 7.4
Mesophilic germs	< 100 CFU/g
Hormones:	
FT4	< 0.04 pg/mg
FT3	< 0.006 pg/mg
Insulin	< 0.002 μU/mg

Cat.No.	Size	EUR
11947.01	10 g	30,00
11947.02	25 g	65,00
11947.03	100 g	185,00

■ Albumin bovine Fraction V, pH 7.0 Life Science grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin ideal for use in biotechnology, diagnostics, research and other life science applications.

First isolated by a proprietary heat shock/organic solvent process and further purified by non-solvent based methodologies to reduce IgG and endotoxins to very low levels.

Contains >90 % monomeric albumin that retains many of the binding, transfer and physical properties of native albumin.

Purity (CAF)	≥ 98.0 %
pH (1 % in 0.15 NaCl)	6.8 - 7.2
Moisture (Lod)	≤ 5.0 %
Heavy metals	≤ 20 ppm
IgG	≤ 50 μg/g
Mycoplasma	none detected
Viral agents	none detected

Cat.No.	Size	EUR
11946.01	25 g	77,00
11946.02	100 g	225,00

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

■ Albumin bovine Fraction V, pH 7.0 microbiological grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as albumin stabilizer. The product is furthermore solvent-treated and thoroughly diafiltered. Specially developed for the growth of leptospira, treponemas and other fastidious microorganisms such as mycobacteria, trypanosomes, other protozoans etc.

Assay (CAF) min. 98.0 %
pH (7% in H₂O) 6.8 - 7.2

Cat.No.	Size	EUR
11934.01	25 g	52,00
11934.02	100 g	165,00
11934.03	500 g	650,00

■ Albumin bovine cell culture grade

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Cohn Analog™. Specially purified albumin with an almost native composition of lipids, fatty acids and other cofactors which are important for cell culture. Suitable as cell growth supplement.

Purity (CAF) min. 96.0 %
pH (10 % in H₂O) 6.5 - 7.5
Endotoxins max. 3 EU/mg

Cohn Analog = registered trademark of Proliant Biologicals, USA.

Cat.No.	Size	EUR
47330.01	10 g	39,00
47330.02	25 g	77,00
47330.03	100 g	225,00

■ Albumin bovine Low Endotoxin biotechnology grade

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113. Suitable as growth promoter in serum-free media for the cultivation of animal cells and as supplement in microbiological media.

Assay (CAF) min. 97.0 %
pH (7 % in H₂O) 5.0 - 6.0
Moisture (KF) 0 - 8.0 %
Endotoxin (LAL) max. 10 EU/mg
IgG not detectable

Cat.No.	Size	EUR
47321.01	25 g	50,00
47321.02	100 g	185,00
47321.03	500 g	795,00

■ Albumin bovine Fraction V, Very Low Endotoxin lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as nutrient in serum-free cell culture media. Suitable in perfusion media for hormone response studies and as hapten carrier for antibody production.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 6.8 - 7.2
Moisture (KF) max. 5.0 %
Endotoxin (LAL) max. 2 EU/mg

Cat.No.	Size	EUR
47324.01	1 g	24,00
47324.02	5 g	57,00
47324.03	25 g	225,00

■ Albumin bovine Fraction V, Very Low Endotoxin, Fatty Acid Free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, followed by treatment to lower fatty acids and lipids. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as growth factor in albumin supplemented culture media for animal cells and microorganisms. Excellent growth medium supplement for hybridomas and the production of monoclonal antibodies. Suitable for in-vitro binding and transport studies.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 6.8 - 7.2
Total lipids (mg/g) max. 2
Fatty Acids (mg/g) max. 0.2
Moisture (KF) max. 5.0 %
Endotoxin level max. 2 EU/mg
(by Limulus Amebocyte Lysate)

Cat.No.	Size	EUR
47299.02	1 g	26,00
47299.03	5 g	90,00
47299.04	25 g	380,00

■ Albumin bovine, 30 % Solution Polymer Enhanced

(BSA)

M_r ca. 67 000

WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Higher avidity exclusively controlled through pure albumin polymerisation. Does not contain artificial avidity enhancers or high molecular weight agglutination potentiators (e.g. PVP, gum acacia, or dextran). Does not contain caprylic acid or other stabilizers. IgG not detectable. Suitable as diluent/stabilizer in various RIA and EIA test systems, for various serological reagents, and for cross-matching procedures and antibody screening or titration.

Protein (Biuret) 29 - 31 g/dL
pH 7.2 - 7.4
NaCl (coulometric titrator) 0.6 - 0.7 g/dL
Preservative (sodium azide) 0.08 - 0.12 g/dL

Cat.No.	Size	EUR
11937.01	25 ml	30,00
11937.02	100 ml	88,00

SingleQuant Assay Kit for
protein quantification:
see special chapter at p. 134

Albumin human lyophil.

M_r ca. 67 000 ♦ CAS [70024-90-7]

HS 35029020

Storage temperature +2 °C to +8 °C

Suitable as cell culture supplement that functions as a carrier protein for fatty acids, growth factors, trace minerals and protects cells from damage both physically and by binding toxins. Diluent/stabilizer for antisera, enzymes, and sensitive biopolymers in order to maintain particular properties.

Each lot is tested and found to be negative for antibodies to HIV-1, HIV-2, HCV, HTLV-1, HTLV-2 and HBsAg, for syphilitic serology and for HIV-1 and HCV RNA.

Total protein > 92.0 %

HSA purity > 97.0 %

pH (10 % in H₂O) 6.5 – 7.4

Cat.No.	Size	EUR
11877.01	1 g	33,00
11877.02	5 g	89,00
11877.03	25 g	345,00

Alcian Blue 8 GS

(Alcian Blue 8GX)

C.I.74240 ♦ CAS [75881-23-1]

EINECS 278-333-8 ♦ WGK 2L ♦ HS 32041900

Copper phthalocyanine dye. Stain for glycoproteins in electron microscopy (1). In electrophoresis (2, 3). For determination of glycosaminoglycans (4, 5).

λmax. 610 – 625 nm

A 1 cm/0.001 % in water/λmax min. 0.18

References:

1. Mowry, R.W. (1956) J. Histochem. Cytochem. **4**, 407
2. Wardi, A.H. & Allen, W.S. (1972) Anal. Biochem. **48**, 621-3
3. Wardi, A.H. & Michos, G.A. (1972) Anal. Biochem. **49**, 607-9
4. O'Brien, J.F. & Emmerling, M.E. (1978) Anal. Biochem. **85**, 377-86
5. Kanwar, Y.S. & Farquhar, M.G. (1979) Proc. Natl. Acad. Sci. USA **76**, 4493-7

Cat.No.	Size	EUR
12021.01	10 g	57,00
12021.02	50 g	205,00

Aliquat® 336

see 37076 Trioctylmethylammonium chloride, page 114

Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/μl) solution

(Orthophosphoric-monoester phosphohydrolase (alkaline optimum))

EC 3.1.3.1. ♦ M_r ca. 140 000



DANGER

H334 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Especially suitable for the preparation of EIA-conjugates. Further dialysis is unnecessary (1). In 50 % glycerol, containing 5 mM Tris, 5 mM MgCl₂, 0.1 mM ZnCl₂, pH ca. 7.0.

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole of 4-nitrophenyl phosphate per minute at 37 °C, pH 9.8 (DEA buffer) (6).

Activity in other units: ca. 1100 U/mg at 25 °C, pH 9.6 (glycine buffer)

Substrates for Alkaline Phosphatase:

4-Nitrophenyl phosphate-Na₂-salt (cat.no. 30770)

Phenolphthalein diphosphate-Na₂-salt (cat.no. 32050)

5-Bromo-4-chloro-3-indoxyl-phosphate-p-toluidine-salt (BCIP) (cat.no. 15247)

5-Bromo-4-chloro-3-indoxyl-phosphate-Na₂-salt (cat.no. 15259)

Naphthol-AS-BI-phosphate (cat.no. 29988)

Naphthol-AS-MX-phosphate (cat.no. 30002)

1-Naphthyl phosphate-Na-salt (cat.no. 30130)

References:

1. Chaconas, G. & van de Sande, J.H. (1980) Methods Enzymol. **65**, 75-85
2. Maxam, A.H. & Gilbert, W. (1980) Methods Enzymol. **65**, 499-560
3. Williams, D.G. (1984) J. Immunol. Methods **72**, 261-8
4. Harlow & Lane (1988) Antibodies, Cold Spring Harbor Laboratory Press, p. 349
5. Garen, A. & Levinthal, C. (1960) Biochim. Biophys. Acta **38**, 470-83
6. Mössner, E. et al. (1980) Hoppe-Seyler's Z. Physiol. Chem. **361**, 543-9

Cat.No.	Size	EUR
32471.01	1 mg	43,00
32471.02	5 mg	159,00

Alu-Gel-S suspension research grade sterile

(Aluminum hydroxide C_γ)

HS 28183000

Ph. Eur. 1.3 % in water. Pyrogen free (as assayed in the supernatant), aged, salt-free.

Aluminum content 5.9 – 7.1 mg/ml
Iron max. 15 ppm

Cat.No.	Size	EUR
12261.01	50 ml	19,00
12261.02	10 x 50 ml	132,00

Aluminium silicate

see 14515 Bentonite-SF, page 17

Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

C.I.20470 ♦ C₂₂H₁₄N₆O₉S₂·Na₂ ♦ M_r 616.5 ♦

CAS [1064-48-8]

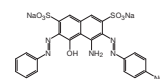
EINECS 213-903-1 ♦ WGK 2L ♦ HS 32041200

λmax. (0.001 % in H₂O) 620 ± 4 nm

References:

1. Wayne, F.P. et al. (1995) J. Biol. Chem. **270** (36), 21404-21410

Cat.No.	Size	EUR
12310.01	25 g	25,00



Amidosulfo betaine-14

see 20757 ASB-14, page 14, 142, 244

Amidosulfo betaine-16

see 20758 ASB-16, page 15, 142, 244

2-Amino-2-(hydroxymethyl)-1,3-propanediol

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

5-Amino-2,3-dihydro-1,4-phthalazinedione

see 28085 Luminol, page 63, 222, 346

L-2-Amino-3-(4-imidazolyl)-propionic acid

see 24820 L-Histidine base, page 56, 148

L-2-Amino-3-(indolepropionic acid)

see 37422 L-Tryptophan, page 118

L-2-Amino-3-methylbutyric acid

see 38064 L-Valine, page 120

L-2-Amino-4-methylpentanoic acid

see 27690 L-Leucine, page 63

L-2-Amino-5-ureido valeric acid

see 17311 L-Citrulline, page 27

6-Amino-n-hexanoic acid

see 12548 ε-Aminocaproic acid, page 12, 137, 224, 243, 350

Aminoacetic acid

see 23395 Glycine, page 53, 247, 355

3-Aminobenzoic acid ethyl ester-methanesulfonate pure

(Tricaine; MS 222)

C₉H₁₁NO₂·CH₃SO₃ ♦ M_r 261.3 ♦ CAS [886-86-2]



WARNING

H315-H319-H335 ♦ EINECS 212-956-8 ♦ WGK 1
♦ HS 29163100

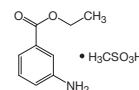
For anesthetization of fish and other cold-blooded animals.

Assay (HPLC) min. 99.0 %
MP 147-152 °C

References:

1. Späth, M. & Schweickert, W. (1977) Arch. Pharmacol. **297**, 9-16

Cat.No.	Size	EUR
12396.02	5 g	30,00
12396.03	25 g	120,00



■ **D(-)-α-aminobenzylpenicillin**

see 13398 Ampicillin-Na-salt, page 13, 280

■ **ε-Aminocaproic acid** analytical grade

(6-Amino-n-hexanoic acid)

 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [60-32-2]

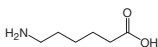
EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

References:

1. Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11
2. Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3



Cat.No.	Size	EUR
12548.03	100 g	31,00

■ **4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride**

see 12745 AEBSF-HCl, page 5, 137, 350

■ **[4-(2-Aminoethyl)benzenesulfonyl]fluoride-HCl**

see 31682 PEFABLOC® SC, page 76, 139, 352

■ **Aminoglutaramic acid**

see 22942 L-Glutamine, page 51

■ **L-2-Aminoglutaric acid**

see 23000 L-Glutamic acid, page 51

■ **6-[D-α-aminophenylacetamido]penicillanic acid**

see 13398 Ampicillin-Na-salt, page 13, 280

■ **3-Aminophthalhydrazine**

see 28085 Luminol, page 63, 222, 346

■ **2-Aminopropanoic acid**

see 11482 L-Alanine, page 8

■ **6-Aminopurine**

see 10739 Adenine, page 5, 309

■ **Ammonium acetate** molecular biology grade $C_2H_7NO_2$ ♦ M_r 77.08 ♦ CAS [631-61-8]

EINECS 211-162-9 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected. Suitable for nucleic acid precipitation. Ammonium acetate can be used instead of sodium acetate for precipitation of nucleic acids. In general, for precipitation of DNA a 7.5 M stock solution and for RNA a 3 M stock solution are used.

Assay (titr.) min. 97.0 %

Cat.No.	Size	EUR
39750.01	500 g	33,00

■ **Ammonium acetate solution, 7.5 M** molecular biology grade $C_2H_7NO_2$ ♦ CAS [631-61-8]

HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 7.5 M stock solution (ammonium acetate, cat. no. 39750: 578.1 g/l) for precipitation of DNA. Short oligonucleotides and free dNTPs do not coprecipitate with DNA when precipitated with NH_4OAc . Two consecutive precipitation steps are enough to remove 99 % of free dNTPs.

References:

1. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), S. 15.3.1-4.
2. Saporito-Irwin, S.M. et al., (1997) BioTechniques, **23** p. 424-427

Cat.No.	Size	EUR
39751.01	250 ml	25,00
39751.02	1 L	65,00

■ **Ammonium chloride** molecular biology grade NH_4Cl ♦ M_r 53.5 ♦ CAS [12125-02-9]**WARNING**

H302-H319 ♦ EG-Index 017-014-00-8 ♦ EINECS 235-186-4 ♦ WGK 1L ♦ HS 28271000

DNase/RNase not detected.

Assay (titr.) min. 99.5 %
 Heavy metals (Pb) max. 0.0005 %
 Iron (Fe) max. 0.0002 %
 Sulfate (SO_4) max. 0.002 %
 Phosphate (PO_4) max. 0.0002 %

Cat.No.	Size	EUR
39752.01	500 g	39,00

■ **Ammonium molybdate** analytical grade $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$ ♦ M_r 1235.9 ♦ CAS [12054-85-2]**WARNING**

H302 ♦ EINECS 234-722-4 ♦ WGK 1L ♦ HS 28417000

Suitable for the determination of phosphate and arsenate.

Assay (titr.) 81.0 - 83.0 % as MoO_3
 min. 99.0 % as $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$
 Phosphate max. 0.0005 %

Cat.No.	Size	EUR
13370.01	100 g	52,00

■ **Ammonium persulfate** electrophoresis grade $(NH_4)_2S_2O_8$ ♦ M_r 228.2 ♦ CAS [7727-54-0]**DANGER**

H272-H302-H315-H317-H319-H334-H335 ♦ EG-Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444 ♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

Polymerisation catalyst for acrylamide/bisacrylamide polymerisation. Suitable for standard and high resolution electrophoresis techniques.

Assay (titr.) min. 99.0 %
 pH 5 % in water 3.2 - 3.9

Cat.No.	Size	EUR
13376.01	50 g	13,00
13376.02	250 g	17,00

■ **Ammonium persulfate** analytical grade

(APS; Ammonium peroxodisulfate)

 $(NH_4)_2S_2O_8$ ♦ M_r 228.2 ♦ CAS [7727-54-0]**DANGER**

H272-H302-H315-H317-H319-H334-H335 ♦ EG-Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444 ♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

Oxidizing agent of copper, for separation of manganese und chrome. For use in electrophoresis. Polymerisation catalyst.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
13375.01	50 g	10,00
13375.05	250 g	13,50
13375.03	1 kg	29,00

■ **Ammonium sulfate** analytical grade $(NH_4)_2SO_4$ ♦ M_r 132.2 ♦ CAS [7783-20-2]

EINECS 231-984-1 ♦ WGK 1L ♦ HS 28332980

Suitable for enzymology.

Assay (titr.) min. 99.0 %

References:

1. Wood, W.I. (1976) Anal. Biochem. **73**, 250-7

Cat.No.	Size	EUR
13378.01	1 kg	29,00

Ammonium sulfate molecular biology grade

$(\text{NH}_4)_2\text{SO}_4$ ♦ M_r 132.2 ♦ CAS [7783-20-2]

EINECS 231-984-1 ♦ WGK 1 ♦ HS 28332980

DNase/RNase not detected.

Assay (titr.) min. 99.5 %

Cat.No.	Size	EUR
39753.01	250 g	19,00
39753.02	1 kg	39,00

AMP

see 10883 Adenosine-5'-phosphate- Na_2 -salt, page 5, 341

Ampholytes

see SERVLYT™ Carrier Ampholytes, page 102, 196

Amphotericin B solution sterile filtered

(Fungizone®)

HS 38220000

Storage temperature -15 °C to -25 °C

Macrocyclic polyene antibiotic isolated from *Streptomyces nodosus*. Used in cell and tissue culture against the contamination and growth of yeast and molds. Mechanism of action: binds to cell membrane sterols, especially ergosterol, resulting in a damage of membrane permeability and leakage of intracellular potassium and magnesium ions.

0.25 mg/ml in water. For use, dilute 1:100 (ca. 2.5 µg/ml). Contains Na-deoxycholate.

Fungizone® = registered trademark of E.R. Squibb

References:

1. Walls, E.V. a. Kay, J.E. (1982) Immunology **47**, 115-21
2. Hartsel, S. a. Bolard, J. (1996) Trends Pharmacol. Sci. **17**, 445-9
3. Ellis, D.(2002) . J. Antimicrob. Chemother. **49** (suppl.), 7-10

Cat.No.	Size	EUR
47982.01	25 ml	38,00

Ampicillin-Na-salt molecular biology grade

(6-[D-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{18}\text{N}_3\text{O}_4\text{S}\cdot\text{Na}$ ♦ M_r 371.4 ♦ CAS [69-52-3]



DANGER

H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin. Used in molecular biology for the selection of resistant bacteria. Solubility in water: 1 part in 2 parts H_2O . Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

References:

1. Davies, J. & Smith, D.J. (1978) Ann. Rev. Microbiol. **32**, 469

Cat.No.	Size	EUR
13399.01	10 g	36,00
13399.02	25 g	62,00
13399.03	100 g	195,00

Ampicillin-Na-salt research grade

(6-[D-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{18}\text{N}_3\text{O}_4\text{S}\cdot\text{Na}$ ♦ M_r 371.4 ♦ CAS [69-52-3]



DANGER

H317-H334 ♦ EINECS 200-708-1 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin. Solubility in water: 1 part in 2 parts H_2O . Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

References:

1. Nguyen-Disteche, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size	EUR
13398.01	25 g	36,00
13398.02	100 g	97,00

Ampicillin trihydrate research grade

(6-[D(-)-α-aminophenylacetamido]penicillanic acid; D(-)-α-aminobenzylpenicillin)

$\text{C}_{16}\text{H}_{19}\text{N}_3\text{O}_4\text{S}\cdot 3\text{H}_2\text{O}$ ♦ M_r 403.5 ♦ CAS [7177-48-2]



DANGER

H317-H334 ♦ EINECS 200-709-7 ♦ WGK 1 ♦ HS 29411000

Ph. Eur. Semi-synthetic derivative of penicillin. Inhibitor of cell wall synthesis in *E. coli*. Soluble 1 part in 150 parts H_2O as well as in diluted acids and bases. Insoluble in alcohol.

Assay (titr.) 96.0 - 100.5 %

References:

1. Nguyen-Disteche, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size	EUR
13397.01	10 g	24,50
13397.02	25 g	48,00
13397.03	100 g	145,00

Aneurin

see 36020 Thiamine-HCl, page 112, 325

Aniline Blue pract.

(Acid Blue 93; China Blue)

C.I. 42780 ♦ CAS [28983-56-4]

EINECS 249-352-9 ♦ WGK 2L ♦ HS 32041200

Soluble in water.

λ_{max} ca. 590 nm
A 1 cm / 0.001 % in water / λ_{max} 0.3 ± 0.1
Water (KF) max. 10.0 %

Cat.No.	Size	EUR
13645.01	25 g	35,00

Anode fluid 3 for IEF

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.17 g L-aspartic acid and 0.18 g L-glutamic acid in 50 ml water. Recommended for general use with SERVLYT™ PRECOTES™

Cat.No.	Size	EUR
42984.03	50 ml	12,50

Antipain research grade

([(S)-1-Carboxy-2-Phenylethyl]-Carbamoyl-L-Arg-L-V al-Arginal)

$\text{C}_{27}\text{H}_{44}\text{N}_{10}\text{O}_6\cdot\text{HCl}\cdot 2\text{H}_2\text{O}$ ♦ M_r 677.2 ♦ CAS [37691-11-5]

EINECS 253-631-0 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

Produced by certain *Streptomyces* species.

Strong inhibitor of papain, trypsin, cathepsin A and B. Inhibits to a smaller extent also plasmin (1). Inhibits transformation of NIH3T3 cells after transfection with an activated H-ras oncogene (2). Inhibition of RNA synthesis in embryos of *Xenopus laevis* (3).

References:

1. Umezawa, H. (1976) Methods Enzymol. **45**, 683-5
2. Cox, L.R. et al. (1991) Cancer Res. **51**, 4810-4
3. Miyata, S. et al. (1988) J. Exp. Zool. **246**, 150-5

Cat.No.	Size	EUR
13685.01	5 mg	52,00
13685.02	25 mg	175,00

For Amino Acids cell culture grade

see special chapter at p. 310

■ **Aphidicolin** research gradeC₂₀H₃₄O₄ ♦ M_r 338.5 ♦ CAS [38966-21-1]

WARNING
H302-H332-H341 ♦ WGK 1 ♦
HS 29419000

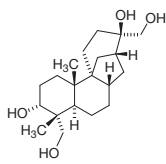
Storage temperature +2 °C to +8 °C

Antibiotic isolated from *Nigrospora oryzae* (1).
Tetracyclic diterpene with antiviral and antimitotic properties. Blocks the cell cycle at early S-phase. Specific inhibitor of α-type polymerase (eucaryotic and viral coded) (2).

Assay (TLC) min. 97.0 %

References:

1. Hubermann, J.A. (1981) Cell **23**, 647-8
2. Spadari, S. et al. (1982) Trends Biochem. Sci. **7**, 29-32



Cat.No.	Size	EUR
13696.02	1 mg	72,00

■ **Aprotinin from bovine lung** lyophil.

(Trypsin inhibitor from bovine lung; Trasylol®)

M_r ca. 6500 ♦ CAS [9087-70-1]

WARNING
H302 ♦ EINECS 232-994-9 ♦ WGK 1 ♦ HS 35040090
Storage temperature +2 °C to +8 °C

Purified inhibitor of trypsin, chymotrypsin, plasmin and especially kallikrein.
For *in vitro* inhibition of fibrinolytic activity in blood samples (1).

Unit definition: 1 IU (inhibitor unit) inhibits 1 U trypsin as defined by cleavage of 1 μmol BAEE (N-benzoyl-L-arginine ethyl ester) per minute (see under trypsin, cat.no. 37291).

Activity in other units: min. 3 Ph. Eur. Units (PEU)/mg, based on dried substance.

Unit definition: 1 Ph. Eur. Unit of aprotinin inhibits 50 % of the enzymatic activity of 2 microkats trypsin, measured with BAEE as substrate at pH 8.0 and 25 °C.

Activity in other units: min. 5850 Kallikrein Inactivator Units (KIU)/mg, based on dried substance. (KIU = PEU x 60 x 32,5).

Trasylol® = registered trademark of Bayer AG

References:

1. Trautschold, E. et al. (1967) Biochem. Pharmacol. **16**, 59-72

Cat.No.	Size	EUR
13718.01	10 mg	40,00
13718.02	25 mg	80,00
13718.03	100 mg	285,00

■ **Anion Exchangers**

see DOWEX® Ion Exchange Resins, page 376

■ **ARALDITE® Accelerator DY 964**

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 114, 361

■ **ARALDITE® CY 212**

see 13825 Renlam® M-1, page 88, 361

■ **ARALDITE® Hardener HY 964** pract.

CAS [25377-73-5]



WARNING
H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171900

Contains dodecenyl succinic anhydride as the main component.

ARALDITE® = registered trademark of Huntsman Advanced Materials Europa

Cat.No.	Size	EUR
13826.01	100 g	15,00
13826.02	1 kg	62,00

■ **L-Arginine base** research grade

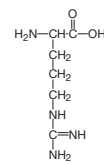
(Arg; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂ ♦ M_r 174.2 ♦ CAS [74-79-3]

WARNING
H319 ♦ EINECS 200-811-1 ♦ WGK 1L ♦ HS 29224985
Ph. Eur., USP.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
13909.02	100 g	22,50
13909.03	1 kg	115,00

■ **L-Arginine base** cell culture grade

(Arg; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂ ♦ CAS [74-79-3]

EINECS 200-811-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 0.02 %
Chloride (Cl) max. 0.02 %
Sulfate (SO₄) 0.02 %
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47200.01	100 g	22,50
47200.02	1 kg	121,00

■ **L-Arginine-HCl** research grade

(Arg HCl; L-2-Amino-5-guanidinovaleric acid hydrochloride)

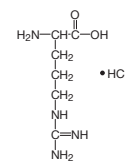
C₆H₁₄N₄O₂·HCl ♦ M_r 210.7 ♦ CAS [1119-34-2]

EINECS 214-275-1 ♦ WGK 1 ♦ HS 29224985

Ph.Eur., USP.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
13940.02	100 g	22,50
13940.04	1 kg	115,00

■ **L-Arginine-HCl** cell culture grade

(Arg HCl; L-2-Amino-5-guanidinovaleric acid)

C₆H₁₄N₄O₂·HCl ♦ CAS [1119-34-2]

EINECS 214-275-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.2 %
Ammonium (NH₄) max. 0.02 %
Chloride (Cl) max. 17.0 %
Sulfate (SO₄) 0.02 %
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47201.01	100 g	22,50
47201.02	1 kg	121,00

■ **ASB-14** research grade

(Amidosulfobetaine-14; 3-[N,N-Dimethyl(3-myristoylamino)propyl]ammonio] propanesulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis.

ASB-14 shows better protein solubilization properties than CHAPS, by which the identification of previously undetected membrane proteins was enabled.

CMC 8 mM (20 - 25 °C)
Purity (HPLC) min. 98.0 %

References:

1. Carroll, J., et al., J. Biol. Chem. **277**, 50311
2. Herbert, B., (1999) Electrophoresis **20**, 660
3. Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20757.01	1 g	32,00
20757.02	5 g	115,00

■ ASB-16 research grade

(Amidosulfobetaine-16; 3-[N,N-Dimethyl-N-(3-palmitamidopropyl)ammonio]propane-1-sulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-16 shows better protein solubilization properties than CHAPS and in some cases than ASB-14, resulting in improved detection of membrane proteins by 2D-electrophoresis.

CMC 8 mM (20 – 25 °C)
Assay (HPLC) min. 98.0 %

References:

1. Flatman, P. W., et al., (2005), J. Physiol. **563**, 421
2. Herbert, B., (1999) Electrophoresis **20**, 660
3. Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20758.01	1 g	32,00
20758.02	5 g	115,00

■ ASB-C7BzO research grade

(C7BzO; 3-(4-Heptyl)phenyl-3-hydroxypropyl-dimethylammoniopropanesulfonate; 3-(4-Heptyl)phenyl-3-hydroxypropyldimethylammoniosulfobetaine)
HS 34021900

Zwitterionic detergent. Useful for solubilizing and stabilizing integral membrane proteins by disrupting aggregates. Especially well-suited to protein extraction for proteomic applications.

Assay (HPLC) min. 96.0 %

References:

1. Luche, S., et al., (2003), Proteomics **3**, 249
2. Tastet, C., et al., (2003), Proteomics **3**, 111
3. Rabilloud, T., et al., (1999) Electrophoresis **20**, 3603

Cat.No.	Size	EUR
20759.01	1 g	95,00
20759.02	5 g	330,00

■ L-Ascorbic acid cryst. research grade

(Vitamin C)
 $C_6H_8O_6$ ♦ M_r 176.1 ♦ CAS [50-81-7]

EINECS 200-066-2 ♦ WGK 1L ♦ HS 29362700

Ph. Eur. Inhibitor of β -N-acetylhexosaminidase (1).

Assay (titr.) min. 99.0 - 100.5 %
[α]_{20 °C/D}
(c=10 in water) +20.5° to + 21.5 °
Heavy metals (Pb) max. 10 ppm

References:

1. Kanfer, J.N. & Spielvogel, C.H. (1973) Biochim. Biophys. Acta **327**, 405-11

Cat.No.	Size	EUR
14030.02	100 g	17,00
14030.03	500 g	42,00

■ L-Ascorbic acid-Na-salt research grade

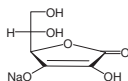
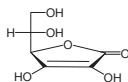
(Sodium-L-(+)-ascorbate)
 $C_6H_7O_6Na$ ♦ M_r 198.1 ♦ CAS [134-03-2]

EINECS 205-126-1 ♦ WGK 1 ♦ HS 29362700

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
14033.01	100 g	20,00
14033.02	500 g	54,00



■ L-Asparagine-monohydrate cell culture grade

(Asn; L-2-Aminosuccinamic acid)
 $C_4H_8N_2O_3 \cdot H_2O$ ♦ CAS [5794-13-8]

EINECS 200-735-9 ♦ HS 29224985

Assay (titr.) min. 99.0 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying 10.5 - 12.5 %
Ammonium (NH_4) max. 1000 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 200 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47202.01	100 g	22,00
47202.02	1 kg	136,00

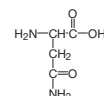
■ L-Asparagine-monohydrate research grade

(Asn; L-2-Aminosuccinamic acid)
 $C_4H_8N_2O_3 \cdot H_2O$ ♦ M_r 150.1 ♦ CAS [5794-13-8]

EINECS 200-735-9 ♦ WGK 1L ♦ HS 29224985

Ph. Eur.
Assay (titr.) 99.0 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
14110.02	100 g	19,50
14110.03	250 g	39,00
14110.04	1 kg	130,00



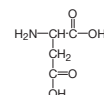
■ L-Aspartic acid research grade

(Asp; L-Aminosuccinic acid; L-2-Aminobutanedioic acid)
 $C_4H_7NO_4$ ♦ M_r 133.1 ♦ CAS [56-84-8]

EINECS 200-291-6 ♦ WGK 1L ♦ HS 29224985

Ph. Eur.
Assay (titr.) 98.5 - 101.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
14180.02	250 g	31,00
14180.03	1 kg	93,00



■ L-Aspartic acid cell culture grade

(Asp; L-Aminosuccinic acid; L-2-Aminobutanedioic acid)
 $C_4H_7NO_4$ ♦ CAS [56-84-8]

EINECS 200-291-6 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin $\leq$ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH_4) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47203.01	100 g	19,50
47203.02	1 kg	121,00

■ ATP

see 10920 Adenosine-5'-triphosphate- Na_2 -salt, page 5, 342

■ Aureolic acid

see 29803 Mithramycin A, page 68, 286, 372

■ Aureomycin

see 14200 Chlortetracycline-HCl, page 26, 283

■ Auxins

see 26172 Indole-3-butyric acid, page 59, 310

■ Auxins

see 26181 Indole-3-acetic acid, page 59, 310

■ Avicel PH 101®

see 14204 Cellulose microcrystalline ca. 0.05 mm, page 24

■ **Avicel PH 105®**

see 14205 Cellulose microcrystalline ca. 0.02 mm, page 24

■ **2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)·2NH₄-salt** *cryst. analytical grade*

(ABTS)

C₁₈H₁₆N₄O₆S₄·2NH₄ ♦ M_r 548.69 ♦ CAS [30931-67-0]



WARNING

H315-H319-H335 ♦ EINECS 250-396-6 ♦ WGK 1 ♦ HS 29342080

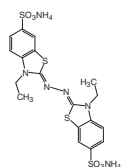
Chromogen for peroxidase in enzyme-linked immunoassay (ELISA) (1). For laccase and angiotensin I-converting enzyme assay (2).

TLC: one spot

References:

1. Groome, N.P. (1980) J. Clin. Chem. Clin. Biochem. **18**, 345-9
2. Shin, T. et al. (1987) Anal. Biochem. **166**, 380-8

Cat.No.	Size	EUR
14364.01	1 g	53,00

■ **Azorubin pure**

(Acid Red 14; Chromotrope FB)

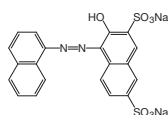
C.I.14720 ♦ C₂₀H₁₂N₂O₆S₂·Na₂ ♦ M_r 502.4 ♦ CAS [3567-69-9]

EINECS 222-657-4 ♦ WGK 2 ♦ HS 29270000

λ max. (0.001 % in water) 514 - 522

A 1 cm/λ max (0.001 % in water) min. 0.4

Cat.No.	Size	EUR
14410.01	25 g	43,50

■ **BA**

see 14812 6-Benzylaminopurine, page 17, 309

■ **Bacitracin research grade**

(Bacidrin; Ginebatine)

M_r ca. ca. 1422 ♦ CAS [1405-87-4]



WARNING

H315-H317-H319-H335 ♦ EINECS 215-786-2 ♦ WGK 2 ♦ HS 29419000

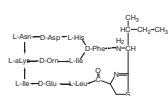
Storage temperature +2 °C to +8 °C

Ph. Eur. Min. 60 000 IU/g. Main component Bacitracin A. Bacteriocidal activity requires divalent cations like Zn²⁺ (1); Peptide antibiotic; inhibitor of peptidoglycan synthesis.

References:

1. Scogin, D. et al. (1980) Biochemistry **19**, 3348-52

Cat.No.	Size	EUR
14420.03	5 g	28,00
14420.02	25 g	75,00

■ **BAEE**

see 14600 Nα-Benzoyl-L-arginine ethyl ester-HCl, page 17, 343

■ **Basic Blue 17**

see 36693 Toluidine Blue O salt, page 113, 373

■ **Basic Blue 9**

see 29198 Methylene Blue, page 67, 241, 372

■ **Basic Green 4**

see 28335 Malachite green oxalate, page 65, 248, 372

■ **Basic Red 2**

see 34598 Safranin O, page 88, 373

■ **Basic Red 5**

see 30305 Neutral Red, page 72, 372

■ **Basic Red 9**

see 31627 Parafuchsin, page 76

■ **Basic Violet 14**

see 21916 Fuchsin basic, page 47, 371

■ **Basic Violet 3**

see 27335 Crystal Violet, page 32, 370

■ **Bathocuproine disulfonic acid-Na₂-salt** *analytical grade*

(2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline disulfonate)

C₂₆H₁₈N₂O₆S₂·Na₂ ♦ M_r 564.6 ♦ CAS [52698-84-7]

EINECS 258-111-7 ♦ WGK 1 ♦ HS 29339980

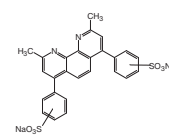
Copper detection in polyacrylamide gels.

Assay (titr.) min. 98.0 %

References:

1. Bruyninck, W.J. et al. (1978) Anal. Biochem. **89**, 174-7

Cat.No.	Size	EUR
14470.02	1 g	68,00
14470.03	5 g	258,00

■ **Bathophenanthroline disulfonic acid-Na₂-salt** *analytical grade*

(4,7-Diphenyl-1,10-phenanthroline disulfonic acid-Na₂-salt·H₂O)

C₂₄H₁₄N₂O₆S₂·Na₂·x H₂O ♦ M_r 536.5 (anhydrous) ♦ CAS [53744-42-6]

EINECS 258-740-7 ♦ WGK 1 ♦ HS 29339980

Determination of iron without extraction (1). Stain for proteins in polyacrylamide gels (2).

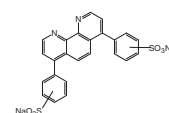
Assay (titr.) min. 98.0 %

Water (KF) max. 10.0 %

References:

1. Graham, G. et al. (1978) Anal. Biochem. **88**, 434-41
2. Landers, J.W. & Zak, B. (1958) Am. J. Clin. Pathol. **29**, 590-2

Cat.No.	Size	EUR
14483.03	1 g	115,00

■ **Bayol F research grade**

(Paraffin oil, low viscosity; Bayol 35)

HS 27101985

Cat.No.	Size	EUR
14500.01	100 ml	13,00
14500.02	1 L	50,00

■ **BCA Protein Assay Macro Kit**

DANGER

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.

- Fast and sensitive assay: linear detection range from 25 – 1000 µg protein/ml
- Easy to use: contains ready-to-use reagents and protein standard
- Compatible with many detergents
- Less binding variation between different proteins than Bradford assay

References:

1. Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size	EUR
39228.01	250 tests	105,00
39228.02	500 tests	167,00

■ **BCA Protein Assay Micro Kit**

DANGER

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.

- Fast and sensitive assay: linear detection range from 0.5 – 20 µg protein/ml
- Easy to use: contains ready-to-use reagents and protein standard
- Compatible with many detergents
- Less binding variation between different proteins than Bradford assay

References:

1. Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size	EUR
39229.01	480 tests	225,00

BCIP

see 15247 5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt, page 20, 221, 294, 343, 369

BCIP/NBT ready-to-use substrate

for immunohistochemistry and blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component substrate solution for detection of alkaline phosphatase in immunohistochemical, in situ hybridization and blotting procedures. A very fine blue-purple precipitate will be localized at sites of AP activity on tissue sections. Purple bands or dots will be visible at the sites of AP activity on membranes.

Contains a proprietary enhancer and a non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
15246.01	100 ml	57,00

BDMA

see 14835 Benzyl dimethylamine, page 17, 360

BEEM capsules 5.2 mm for EM-embedding

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size	EUR
43510.01	100 pieces	59,00

BEEM capsules 8.0 mm for EM-embedding

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size	EUR
43511.01	100 pieces	59,00

Bentonite-SF research grade

(Aluminium silicate; Montmorillonite)
CAS [1302-78-9]

EINECS 215-108-5 ♦ HS 25081000

NF. Emulsifier and adsorbent for proteins and viruses. Conforms to NF in its gel-forming capacity. For detoxification use a 2 % aqueous suspension. Suitable for the removal of cyanate in urea solutions.

Water content	5.0 - 8.0 %
Swelling 2 % in water	min. 24 ml
pH 2 % in water	9.5 - 10.5

References:

1. Wystrup, G. et al. (1979) Eur. J. Biochem. **100**, 101-13

Cat.No.	Size	EUR
14515.02	2,5 kg	106,00

Benzamidine-HCl research grade

$C_7H_8N_2 \cdot HCl$ ♦ M_r 156.62 (anhydr.) ♦ CAS [1670-14-0]

 **WARNING**
H315-H319-H335 ♦ EINECS 216-795-4 ♦ WGK 1 ♦
HS 29252900

Storage temperature +2 °C to +8 °C

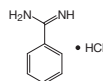
Potent inhibitor of thrombin and trypsin.

Assay (titr.)	min. 99.0 %
Water content	max. 15.0 %

References:

1. Henkel, H.J. et al. (1983) Pharmazie **38**, 342-6

Cat.No.	Size	EUR
14525.01	5 g	19,00
14525.02	25 g	37,00



N α -Benzoyl-L-arginine ethyl ester-HCl analytical grade

(BAEE)

$C_{15}H_{22}N_4O_3 \cdot HCl$ ♦ M_r 342.8 ♦ CAS [2645-08-1]

EINECS 220-157-0 ♦ WGK 1 ♦ HS 29224985

Storage temperature +2 °C to +8 °C

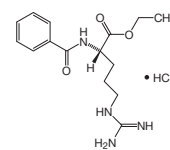
Substrate for determination of trypsin (1). Papain substrate (2).

MP	128 - 133 °C
[α] _D ²⁰ °C/D (c=2 in water)	-18 ± 2 °

References:

- Smith, E.L. & Parker, M.J. (1958) J. Biol. Chem. **233**, 1387-91
- Schwert, G.W. & Takenaka, Y. (1955) Biochim. Biophys. Acta **16**, 570-8

Cat.No.	Size	EUR
14600.02	5 g	55,00



N⁶-Benzyladenine

see 14812 6-Benzylaminopurine, page 17, 309

Benzyl dimethylamine research grade

(BDMA; N, N-Dimethylbenzylamine)

$C_9H_{13}N$ ♦ M_r 135.2 ♦ CAS [103-83-3]

  **DANGER**
H226-H302-H312-H314-H332-H412
♦ EG-Index 612-074-00-7 ♦ GGVSE/

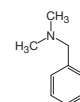
ADR 8 II UN2619 ♦ IATA 8 II UN2619 ♦ EINECS 203-149-1 ♦ WGK 2L ♦
HS 29214900

Catalyst of very low viscosity for epoxy-polyester embedding in electron microscopy.

References:

1. Freeman, J.A. & Spurlock, B.O. (1962) J. Cell Biol. **13**, 137-43

Cat.No.	Size	EUR
14835.01	10 ml	19,50



6-Benzylaminopurine research grade

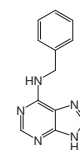
(BA; N⁶-Benzyladenine)

$C_{12}H_{11}N_5$ ♦ M_r 225.3 ♦ CAS [1214-39-7]

 **WARNING**
H302-H315-H319-H332-H335 ♦ EINECS 214-927-5 ♦
WGK 1 ♦ HS 29335995

Assay (HPLC)	min. 99.0 %
MP	230 - 233 °C
λ max. (0.001 % in 0.1M HCl)	274 - 278 nm

Cat.No.	Size	EUR
14812.01	1 g	20,00
14812.02	5 g	58,00



Benzyltrimethyl-n-hexadecyl ammonium chloride analytical grade

(16-BAC; Benzylhexadecyldimethylammonium chloride; Cetalkonium chloride; Cetyldimethylbenzylammonium chloride)

CAS [122-18-9]

  **DANGER**
H302-H312-H314-H400 ♦ GGVSE/
ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦
HS 34021900

Cationic surfactant used in acidic PAGE, especially 2D electrophoresis (1), improving resolution of proteins with similar molecular weight. It has been used to separate yeast mitochondrial membrane proteins (2).

Assay	min. 99.0 %

References:

- Nothwang, H. G. & Schindler (2009) J. Methods Mol. Biol. **528**, 269-77
- Braun, R. J., et al. (2009) Methods Mol. Biol. **528**, 83-107

Cat.No.	Size	EUR
14836.01	25 g	34,00
14836.02	100 g	110,00

Benzylhexadecyldimethylammonium chloride

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

Benzylpenicillin potassium

see 31749 Penicillin G-K-salt, page 77, 281

■ **Benzylsulfonyl fluorid**

see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

■ **Bestatin research grade**

(((2S, 3R)-3-Amino-2-hydroxy-4-phenylbutanoyl]-L-leucine)

 $C_{16}H_{24}N_2O_4 \cdot HCl$ $\diamond$ M_r 344.8 $\diamond$ CAS [65391-42-6]WGK 1 $\diamond$ HS 29224985

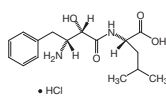
Storage temperature -15 °C to -25 °C

Aminopeptidase B and leucine aminopeptidase inhibitor (1, 2) with multi-pharmacological functions (3). Inhibitor of enkephalin degradation in cell preparations from brain (4). Anticarcinogenic (5, 6). Immunomodulating agent (7, 8). Inhibitor of leukotriene A4 hydrolase (9).

Assay (HPLC) min. 90.0 %

References:

- Iwashashi, M. et al. (1994) Anticancer Res. **14**, 1563-8
- Umezawa, H. (1984) Rev. Infect. Dis. **6**, 412-20
- Ota, K. (1991) Biomed. Pharmacother. **45**, 55-60
- Orning, L. et al. (1991) J. Biol. Chem. **266**, 1375-8
- Umezawa, H. et al. (1976) J. Antibiot. **29**, 97-9
- Burley, S.K. et al. (1991) Proc. Natl. Acad. Sci. USA **88**, 6912-20
- Mathe, G. (1991) Biomed. Pharmacother. **45**, 49-54
- Cohen, M.L. et al. (1983) J. Pharmacol. Exp. Ther. **224**, 379-85
- Ino, K. et al. (1991) Biotherapy **3**, 351-7



Cat.No.	Size	EUR
14980.02	5 mg	57,50

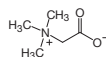
■ **Betaine cryst. research grade**

(N-Trimethylglycine hydroxide)

 $C_5H_{11}NO_2 \cdot H_2O$ $\diamond$ M_r 135.2 $\diamond$ CAS [17146-86-0]EINECS 209-684-7 $\diamond$ WGK 1L $\diamond$ HS 29239000

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
14992.02	250 g	65,00

■ **BICIN**

see 15105 N,N-Bis(2-hydroxyethyl)glycine, page 18, 355

■ **(+)-Biotin cryst. research grade**

(d-Biotin; Vitamin H)

 $C_{10}H_{16}N_2O_3S$ $\diamond$ M_r 244.3 $\diamond$ CAS [58-85-5]EINECS 200-399-3 $\diamond$ WGK 1L $\diamond$ HS 29362900

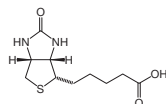
USP, Ph. Eur. Tested for use in tissue culture.

Assay (titr.) 98.5 - 100.5 %

Heavy metals max. 10 ppm

References:

- Knappe, J. (1970) Annu. Rev. Biochem. **39**, 757-76
- Bayer, E. & Wilchek, M. (1974) Methods Enzymol. **34**, 265-7



Cat.No.	Size	EUR
15060.02	500 mg	27,00
15060.03	2,5 g	90,00

■ **2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol analytical grade**

(Bis(2-hydroxyethyl)imino-tris(hydroxy methyl) methane; BISTRIS)

 $C_8H_{19}NO_5$ $\diamond$ M_r 209.24 $\diamond$ CAS [6976-37-0]EINECS 230-237-7 $\diamond$ WGK 1 $\diamond$ HS 29221985

Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

280 nm

Iron (Fe) max. 0.1

Lead (Pb) max. 5 ppm

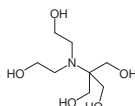
pH 10 % in water max. 3 ppm

pKa 20 9.4 - 10.4

pKa 20 6.46

References:

- Daabo, M. & Bates, R. (1970) J. Phys. Chem. **74**, 702-5



Cat.No.	Size	EUR
15107.03	100 g	52,00
15107.04	250 g	121,00

■ **N,N-Bis(2-hydroxyethyl)glycine analytical grade**

(BICIN)

 $C_6H_{13}NO_4$ $\diamond$ M_r 163.2 $\diamond$ CAS [150-25-4]EINECS 205-755-1 $\diamond$ WGK 1 $\diamond$ HS 29224985

Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

280 nm

Heavy metals (Pb) max. 0.08

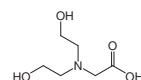
pH 10 % in water max. 0.06

pKa 20 4.6 - 5.1

pKa 20 8.3

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68



Cat.No.	Size	EUR
15105.02	100 g	39,00
15105.03	250 g	76,00

■ **Bis(acrylamido)methane**

see 29195 N,N'-Methylene bisacrylamide 2X, page 67, 234

■ **Bisbenzimidazole H 33258 research grade**

(Hoechst 33258; 2-[2-(4-Hydroxyphenyl)-6-benzimidazolyl]-6-(1-methyl-4-piperazolyl)-benzimidazole trihydrochloride)

 $C_{25}H_{24}N_6O_3 \cdot 3HCl$ $\diamond$ M_r 533.88 $\diamond$

CAS [23491-45-4]

WARNING

H315-H319 $\diamond$ EINECS 245-690-6 $\diamond$ WGK 1 $\diamond$ HS 29335995

Storage temperature +2 °C to +8 °C

For DNA fluorescence labeling of vital and fixed nuclei (1, 2). Specific chromosome banding patterns (3, 4, 5).

Assay (HPLC)

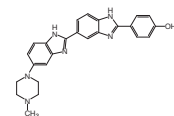
Water

min. 98.0 %

max. 20.0 %

References:

- Lämmler, G. & Schütze, H.R. (1969) Naturwissenschaften **58**, 286-99
- Hilwig, J. (1969) Z. Zellforsch. **104**, 127-37
- Hilwig, J. & Gropp, A. (1972) Exp. Cell Res. **75**, 122-6
- Binder, M. & Kim, M.A. (1975) Exp. Path. **10**, 220-4
- Stokke, T. & Steen, H.B. (1985) J. Histochem. Cytochem. **33**, 333-8



Cat.No.	Size	EUR
15090.01	100 mg	58,00

■ **BISTRIS**

see 15107 2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol, page 18, 244, 319, 355

■ **Blank PRECOTES™ PAG layer 300 μm, size 125 x 125 mm**

DANGER

H340-H350-H361F $\diamond$ HS 38220000

Storage temperature +2 °C to +8 °C

Blank PRECOTES™ were developed by SERVA to provide a versatile solution to perform Isoelectric Focusing (IEF) of any pH range. Blank PRECOTES™ are thin (0.3 mm) polyacrylamide gels cast onto GEL-FIX™ support film that contain only BisTris buffer pH 6.5. They are given the prefix »blank« to indicate that they are (almost) »empty« gels with a matrix that can be adapted to anything the user wants it to be.

To perform IEF, Blank PRECOTES™ are equilibrated in the ampholyte mixture of choice for 30 minutes prior to electrophoresis. Resolution is at least as good, sometimes found even superior, compared to the results obtained with gels of »cast-in« ampholytes.

Shelf-life of Blank PRECOTES is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PRECOTES™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42759.01	5 gels	97,00

■ **Blank PRECOTES™ PAG layer 300 μm, size 245 x 125 mm**

DANGER

H340-H350-H361F $\diamond$ HS 38220000

Storage temperature +2 °C to +8 °C

Cat.No.	Size	EUR
42710.01	5 gels	139,00

Blank PreNets™ PAG layer 300 µm, size 125 x 125 mm

HS 38220000

Storage temperature +2 °C to +8 °C

PreNets™ gels are prepared with Net-Fix™ cast into the polyacrylamide matrix adding mechanical stability to the thin gel layer. Net-Fix™ is an inert polyester net activated to bind polyacrylamide. After electrophoresis, the gel is easily lifted from its film support (non-binding) and transferred to the membrane of choice, no tearing or damage will occur when handling the thin layer due to the stabilizing effect of the built-in Net-Fix™.

Both methods, semi-dry transfer and tank transfer, are applicable. Transfer using a semi-dry blotter is usually completed within 30 minutes. Handling of PreNets™ is identical in all steps to operating PRECOTES™, including staining and drying.

Shelf-life of Blank PreNets™ is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PreNets™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42758.01	5 gels	107,00

Bleomycin-sulfate lyophil. pure

(Blenoxane)

CAS [9041-93-4]



DANGER

H302-H332-H350-H360D

Carc. 1B, Repr. 1A

EINECS 232-925-2 ♦ WGK 2 ♦ HS 29419000

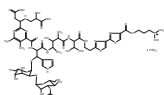
Storage temperature +2 °C to +8 °C

Chemistry and action of bleomycin: Group of glycopeptide antibiotics from *Streptomyces verticillus* with antineoplastic properties by inhibition of DNA synthesis: reacts with DNA and causes breaks in the nucleotide chain.

References:

1. Umezawa, H. (1980) Med. Chem. **16**, 147-66
2. Pavon, V. et al. (1995) Current Microbiol. **30**, 117-20
3. Fattman, C.L. et al. (2001) Free Radical Biol. Med. **31**, 1198-1207
4. Izbicke, G. et al. (2002) Am. J. Physiol. **283**, L1110-6
5. Yamamoto, T. a. Nishioka, K. (2005) Experim. Dermatol. **14**, 81-95
6. Pietruska, J.R. a. Kane, A.B. (2007) Cancer Res. **67**, 3637-45
7. Moodley, Y. et al. (2009) Am. J. Pathol. **175**, 303-13

Cat.No.	Size	EUR
15154.01	1 mg	42,00
15154.02	5 mg	146,00



Blue tetrazolium chloride

see 35950 Tetrazolium Blue-chloride, page 112, 349

Boric acid electrophoresis grade

H₃BO₃ ♦ M, 61.83 ♦ CAS [10043-35-3]

DANGER

H360Df ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m³ ♦ EG-Index 005-007-00-2

♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Boric acid is used to prepare TBE buffer, the most frequently used buffer for DNA/RNA electrophoresis (1). Application tested quality for electrophoresis.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 15 ppm

References:

1. Ogden, R. C. & Adams, D. A. (1987) Methods Enzymol. **152**, 61 - 87

Cat.No.	Size	EUR
15166.01	250 g	16,50
15166.02	1 kg	32,00

Boric acid analytical grade

H₃BO₃ ♦ M, 61.83 ♦ CAS [10043-35-3]

DANGER

H360Df ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m³ ♦ EG-

Index 005-007-00-2 ♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Ph.Eur. Buffering substance.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 15 ppm

Cat.No.	Size	EUR
15165.02	250 g	15,00
15165.01	1 kg	29,00

Bradford reagent, 5x concentrate



DANGER

H314 ♦ GGVSE/ADR 3 II UN2924 ♦ IATA 3 II UN2924 ♦ WGK 1 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

Protein dye reagent for protein quantification after Bradford (1).

- Precise, reproducible and inexpensive
- Fast, only five minutes incubation before reading the sample at 595 nm
- Suitable for micro (1- 25 µg protein/ml) and standard (100 - 1000 µg protein/ml) assays.

50 ml Bradford reagent are sufficient for more than 200 micro assays (1-ml cuvette) or for more than 900 assays in micro titer plates.

References:

1. Bradford, M. M. (1976) Anal. Biochem., **72**, 248 - 254

Cat.No.	Size	EUR
39222.01	50 ml	10,50
39222.02	200 ml	32,00
39222.03	500 ml	69,00

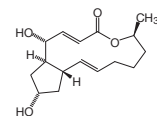
Brefeldin A research grade

C₁₆H₂₄O₄ ♦ M_r 280.4 ♦ CAS [20350-15-6]

WARNING

H302-H312-H332 ♦ WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C



Macrolide antibiotic from *Penicillium brefeldianum*.

Specifically inhibits translocation of proteins from the endoplasmic reticulum to the Golgi apparatus.

Assay (TLC) min. 98.0 %

References:

1. Capparelli, A.W. et al. (1993) Am. J. Physiol. **264**, C40-7
2. Cluett, E.B. et al. (1993) J. Cell Biol. **120**, 15-24
3. Driouch, A. et al. (1993) Plant Physiol. **101**, 1363-73
4. Uhlin-Hansen, L. & Yanagishita, M. (1993) Biol. Chem. **268**, 17370-6
5. Calabro, A. & Hascall, V. (1994) J. Biol. Chem. **269**, 22771-8
6. Turi, T.G. et al. (1994) J. Biol. Chem. **269**, 24229-36

Cat.No.	Size	EUR
15100.01	1 mg	38,00
15100.02	5 mg	97,00

Brij 35™ pract.

(Polyoxyethylene monolauryl ether)

M_r ca. 1200 ♦ CAS [9002-92-0]

EINECS 500-002-6 ♦ WGK 2L ♦ HS 34021300

n ca. 23. HLB 16.9. Suitable for the isolation of functional membrane complexes (1). Also applied in chemiluminescence analysis (2, 3).

Brij™ = registered trademark of the CRODA International Plc.

References:

1. Yoshikawa, S. et al. (1988) Proc. Natl. Acad. Sci. USA **85**, 1354-8
2. Javier, B.F. et al. (1988) J. Biolumin. Chemilumin. **2**, 121-8
3. Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
15230.01	100 g	15,00
15230.02	1 kg	64,00

SingleQuant Assay Kit for
protein quantification:
see special chapter at p. 134

■ Bromelain from pineapple stem ca. 0.5 DMC-U/mg powder

(Stem bromelain)

EC 3.4.22.32 ♦ M_r ca. 33 000 ♦ CAS [37189-34-7]

DANGER

H315-H319-H334-H335 ♦ EG-Index 647-005-00-X ♦
EINECS 253-387-5 ♦ WGK 3L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Suitable for blood group serology (1) and degradation of proteins.

Unit definition: 1 DMC-U catalyzes the cleavage of 1 μmole peptide bond from dimethyl casein per minute at 25 °C, pH 7.0 expressed in terms of newly formed terminal amino groups (determined with TNBS) (2).

Activity in other units: 1200 GDU units/g (1 GDU unit yields the equivalent of 1 mg amino nitrogen from gelatin in 20 min. at 45 °C, pH 4.5). 1200 GDU units/g, 2400 FIP units/g (4).

References:

- Gray, M.P. (1959) J. Lab. Clin. Med. **54**, 155-7
- Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
- Murach, T. (1976) Methods Enzymol. Vol. **45**, Acad. Press, New York, p. 475-85
- Monod, J. (1966) Pharm. **4**, 343 (FIP-Method)

Cat.No.	Size	EUR
15250.01	25 g	15,00
15250.02	100 g	44,00
15250.03	500 g	170,00

■ 5-Bromo-2'-deoxyuridine research grade

C₉H₁₁BrN₂O₅ ♦ M_r 307.1 ♦ CAS [59-14-3]

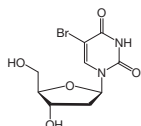
WARNING

H351 ♦ EINECS 200-415-9 ♦ WGK 2 ♦
HS 29349990

Storage temperature +2 °C to +8 °C

Assay (HPLC)

min. 98.0 %



Cat.No.	Size	EUR
15240.01	250 mg	27,00
15240.02	1 g	69,00

■ 5-Bromo-4-chloro-3-indolyl-phosphate-Na₂-salt analytical grade

(5-Bromo-4-chloro-3-indolyl-phosphate-Na₂-salt;

X-phos disodium salt)

C₈H₄BrClNO₄P-Na₂ ♦ M_r 370.43 ♦ CAS [102185-33-1]

WGK 1 ♦ HS 29339980

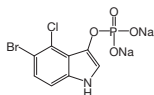
Storage temperature -15 °C to -25 °C

Crystalline, easily soluble in water, more stable than the monopotassium salt.

Store dry in the dark. Substrate for phosphatase.

Assay (HPLC)

min. 99.0 %



Cat.No.	Size	EUR
15259.02	500 mg	89,00

■ 5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt research grade

(BCIP)

C₈H₈NO₄BrClP-C₇H₉N or C₁₅H₁₅BrClN₂O₄P ♦ M_r 433.6
♦ CAS [6578-06-9]

EINECS 229-506-1 ♦ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 μl NBT stock solution and 33 μl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

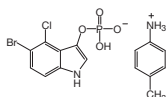
Assay (HPLC)

min. 99.0 %

References:

- Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size	EUR
15247.02	100 mg	25,00
15247.03	500 mg	85,00



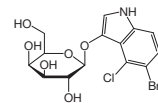
■ 5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal) research grade

(X-Gal)

C₁₄H₁₅BrClNO₆ ♦ M_r 408.6 ♦ CAS [7240-90-6]

EINECS 230-640-8 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C



X-gal is a well known histochemical substrate used to detect the β-galactosidase enzyme (1, 2, 3, 4, 9, 10). Identification of lac^c-colonies (8). X-gal is used to distinguish recombinant plasmids from parental vectors in cloning experiments using vectors containing the lacZ or lacZ [DMVP1](-)peptide gene (2, 3, 5). Upon hydrolysis, X-gal yields a localized, insoluble blue precipitate making it exceptionally useful in blotting, immunocytochemical, and ELISA assays. X-gal has been used for the detection of coliforms (*E. coli*) in municipal water supplies (6) and food products (7). X-gal is often used in conjunction with IPTG (Isopropyl-β-D-thiogalactopyranoside, cat. no. 26600) which binds and inhibits the lac repressor thus inducing β-galactosidase activity.

Stock solution: 20 mg/ml in DMF. Store in aliquots at -20 °C in the dark. For detection of transformants, use in final concentration of 40 μg/ml.

Assay (HPLC)

min. 99.0 %

References:

- Maloy, S.R. (1990) Experimental Techniques in Bacterial Genetics, Jones and Bartlett (eds.), Boston, MA
- Miller, J.H. (1992) A Short Course in Bacterial Genetic, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
- Sambrook, J. et al. (1989) Molecular Cloning: A laboratory Manual, 2nd. ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor (4.8, 4.22-4.23, 4.33, 4.37-4.38, 1.85-1.86, B.14)
- Horowitz, J. et al. (1964) J. Med. Chem. **7**, 574
- Brand, A. and Perrimon, N. (1993), Development **118**, 401
- Ley, A. et al. (1993) Can. J. Microbiol. **39**, 821
- Feldsine, P.T. et al. (1993) J. AOAC Int. **76**, 5
- Lojda, Z. et al. (1973) Histochemie **34**, 31-9
- Lojda, Z. et al. (1979) in «Enzyme Histochemistry, A Laboratory Manual», Springer-Verlag Berlin, Heidelberg, New York
- Davies et al. (1980) Advanced Bacterial Genetics, Cold Spring Harbor, N.Y.

Cat.No.	Size	EUR
15243.06	250 mg	27,00
15243.03	1 g	69,00
15243.07	5 g	235,00

■ 5-Bromo-4-chloro-3-indolyl-β-D-glucuronide-cyclohexylammonium salt

(X-Gluc; X-glucA CHX)

C₁₄H₁₃BrClNO₇·C₆H₁₃N or C₂₀H₂₆BrClN₂O₇ ♦ M_r 521.8 ♦
CAS [114162-64-0]

WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C

Chromogenic substrate for β-glucuronidase. The chromogenic substrate X-gluc is used in a variety of applications for detection of β-glucuronidase enzyme. This compound has been used since late 1960 in plant tissue sections. Because of the localized colour which X-gluc produces upon reduction, it is extremely useful in identifying gene presence within most cell types (2). Recent applications of this product include its use in the rapid detection of GUS (*E. coli* β-glucuronidase) gene fusion marker in plants (6, 7). X-Gluc has also been reported applications in detection of *E. coli* in food samples such as meat, dairy products, and shellfish (4, 9).

This chemical has clinical applications in the assessment of urinary infections by detection of the presence of *E. coli* (8). X-gluc has gained international acceptance as highly accurate test for the presence of *E. coli* in potable water sample thereby greatly reducing false positive and negative found with traditional methods.

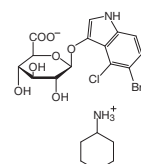
Assay (TLC)

min. 98.0 %

References:

- Sartory, D.P. & Howard, L. (1992) Let. Appl. Microbiol. **15**, pp. 2373-376
- Ellis, D.D. et al. (1993) Bio/Technology **11**, No. 1, pp. 84-89
- Brenner, K.P. et al. Abstracts for the Annual Meeting of the American Society for Microbiology, May 16-20, 1993
- Restaino, L. et al. (1990) J. Food Protect. **53**, No. 6, pp. 508-510
- Frampton, E.W. et al. (1988) J. Food Protect. **51**, No. 5, pp. 402-404
- Bommineni, V.R. et al. (1993) Plant Cell Reports **13**, No. 1, pp. 17-23
- Martin, G.C. et al. (1990) J. Amer. Soc. Hortic. Sci. **115**, No. 4, pp. 686-691
- Delisle, G.J. and Ley, A. (1989) J. Clin. Microbiol. **27**, No. 4, pp. 778-779
- Watkins, W.D. et al. (1988) Appl. Environ. Microbiol. **54**, pp. 1874-1875

Cat.No.	Size	EUR
15248.03	100 mg	63,00



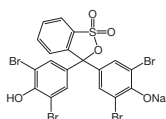
Bromophenol Blue-Na-salt

(3'-3''-5'-5''-Tetrabromophenol sulfonphthalein)
 $C_{19}H_9Br_4O_5S \cdot Na$ M_r 692.0 $\blacklozenge$ CAS [34725-61-6]

EINECS 252-170-2 $\blacklozenge$ WGK 2L $\blacklozenge$ HS 32049000

Tracking dye for electrophoresis; indicator pH 3.4 (yellow) - 4.6 (purple).

λ max (0.001 % in water) 594 $\pm$ 4 nm



Cat.No.	Size	EUR
15375.01	5 g	16,50
15375.02	25 g	41,00

BSA

see 11920 Albumin bovine, page 8, 276, 293

BSA

see 11947 Albumin bovine Low Hormone, page 9, 277, 313

BT

see 35950 Tetrazolium Blue-chloride, page 112, 349

Buffer substance Dulbecco's

(PBS)
 HS 38220000

Phosphate buffered saline, **without** calcium and magnesium; **without** phenol red; powder.

References:

1. Dulbecco, R. & Vogt, M. (1954) J. Exp. Med. **99**, 17-82
2. Hanks, J.H. & Wallace, R.E. (1949) Proc. Soc. Exp. Biol. Med. **71**, 196-200

Cat.No.	Size	EUR
47302.02	10 L	14,00
47302.03	50 L	42,00

Buffer Kit for 2D HPE™ Gels

HS 38220000

Anode, cathode and equilibration buffer, cooling contact fluid and electrode wicks for all flatbed gels.

Cat.No.	Size	EUR
43312.01	1 kit	64,00

n-Butanol analytical grade

(1-Butanol)

$C_4H_{10}O$ M_r 74.12 $\blacklozenge$ CAS [71-36-3]

   DANGER
 H226-H302-H315-H318-H335-H336 $\blacklozenge$ EG-Index 603-004-00-6 $\blacklozenge$ GGVSE/ADR 3 III UN1120 $\blacklozenge$ IATA 3 III UN1120 $\blacklozenge$ EINECS 200-751-6 $\blacklozenge$ WGK 1 L

Assay (GC) min. 99.0 %
 Density (20 °C) 0.810
 Water max. 500 ppm
 Acidity max. 0.001 %
 Residue on evaporation max. 50 ppm

Cat.No.	Size	EUR
45628.01	1 L	25,00
45628.02	2,5 L	51,00

n-Butanol molecular biology grade

(1-Butanol)

$C_4H_{10}O$ M_r 74.12 $\blacklozenge$ CAS [71-36-3]

   DANGER
 H226-H302-H315-H318-H335-H336 $\blacklozenge$ MAK/TRK 310 mg/m³; 100 ml/m³ $\blacklozenge$ EG-Index 603-004-00-6
 $\blacklozenge$ GGVSE/ADR 3 III UN1120 $\blacklozenge$ IATA 3 III UN1120 $\blacklozenge$ EINECS 200-751-6 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 29051300

n-Butanol is used for the removal of ethidium bromide from DNA purified by CsCl gradient ultracentrifugation. It is also useful for the concentration of diluted nucleic acid solutions by repeated extractions.

Assay min. 99.0 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.46, E16)
2. Ed. Ausubel et al., (2000) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), 7.6.5 Suppl.

Cat.No.	Size	EUR
39550.01	500 ml	32,00

C7BzO

see 20759 ASB-C7BzO, page 15, 142, 244

Cacodylic acid-Na-salt-3H₂O research grade

(Sodium cacodylate)

$C_2H_5AsO_2 \cdot Na \cdot 3H_2O$ M_r 214.0 $\blacklozenge$ CAS [6131-99-3]

  DANGER
 H301-H331-H400-H410 $\blacklozenge$ EG-Index 033-002-00-5
 $\blacklozenge$ GGVSE/ADR 6.1 II UN1688 $\blacklozenge$ IATA 6.1 II UN1688 $\blacklozenge$ EINECS 204-708-2 $\blacklozenge$ WGK 3 $\blacklozenge$ HS 29319090

For buffers, especially for bactericidal buffers used in electron microscopy.

Assay (titr.) min. 98.0 %

Cat.No.	Size	EUR
15540.01	25 g	26,00
15540.02	100 g	64,00
15540.03	500 g	280,00

Calcimycin free acid

see 77098 Calcium Ionophore A 23187, page 22, 281

Calcium chloride pure, anhydrous

$CaCl_2$ M_r 110.99 $\blacklozenge$ CAS [10043-52-4]

 WARNING
 H319 $\blacklozenge$ EG-Index 017-013-00-2 $\blacklozenge$ EINECS 233-140-8 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 28272000

Assay (titr.) min. 98.0 %

Cat.No.	Size	EUR
15585.02	500 g	24,50

Calcium chloride-2H₂O analytical grade

$CaCl_2 \cdot 2H_2O$ M_r 147.0 $\blacklozenge$ CAS [10035-04-8]

 WARNING
 H319 $\blacklozenge$ EG-Index 017-013-00-2 $\blacklozenge$ EINECS 233-140-8 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 28272000

USP, Ph.Eur. USP, Ph.Eur.

Assay (titr.) 99.0 - 103.0 %
 Sulfate max. 0.03 %
 Heavy metals (Pb) max. 0.001 %
 pH 5 % in water 4.5 - 9.2

Cat.No.	Size	EUR
15587.02	1 kg	26,00

BlueLine Equipment
for Electrophoresis:
 see special chapter at p. 253

■ **Calcium chloride-2H₂O** molecular biology gradeCaCl₂·2H₂O ♦ M_r 147.0 ♦ CAS [10035-04-8]**WARNING**

H319 ♦ EG-Index 017-013-00-2 ♦ EINECS 233-140-8 ♦ WGK 1L ♦ HS 28272000

DNase/RNase not detected. Useful in preparing competent bacteria.

Assay (titr.)	min. 99.0 %
Sulfate	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %
pH 5 % in water	4.5 - 9.2

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.82-1.84)

Cat.No.	Size	EUR
39551.01	250 g	26,00

■ **Calcium hypochlorite** research gradeCa(OCl)₂ ♦ M_r 142.98 ♦ CAS [7778-54-3]**DANGER**

H272-H302-H314-H400 ♦ EG-Index 017-012-00-7 ♦ GGVSE/

ADR 5.1 II UN1748 ♦ IATA 5.1 II UN1748 ♦ EINECS 231-908-7 ♦ WGK 2 ♦ HS 28281000

Disinfectant, oxidant and chlorinating agent.

MP	100 °C
d20 °C	2.350
Active chlorine	min. 65.0 %

Cat.No.	Size	EUR
15591.02	500 g	53,00

■ **Calcium Ionophore A 23187** research grade

(A 23187; Calcimycin free acid)

C₂₉H₃₇N₃O₈ ♦ M_r 523.6 ♦ CAS [52665-69-7]**WARNING**

H302-H312-H332 ♦ EINECS 258-084-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

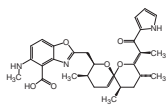
Free acid; crystalline; Increases the permeability of biological membranes with high selectivity for divalent cations (Ca, Mg) in contrast to other cations (1). Protect from light.

Purity (HPLC) min. 97.0 %

References:

1. Ackerman, K.E.O. et al. (1983) Biochim. Biophys. Res. Commun. **113**, 171-7
2. French, J.K. et al. (1987) FEBS Lett. **212**, 242-6
3. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
4. Martin, G. et al. (2005) Human Reproduction **20**, 3459-68
5. Shi, Y. et al. (2007) Br. J. Pharmacol. **150**, 624-32
6. Verma, A. et al. (2011) Cell Calcium **50**, 510-22

Cat.No.	Size	EUR
77098.01	5 mg	75,00
77098.02	10 mg	116,00

■ **Canada balsam** for microscopy

CAS [8007-47-4]

EINECS 232-362-2 ♦ WGK 2L ♦ HS 13019000

Density (20 °C)	0.97 - 1.0
Refractive index (20 °C)	1.520 - 1.525

Cat.No.	Size	EUR
26896.02	100 ml	42,50

■ **Caprylyl sulfobetaine**

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

■ **Carbenicillin-Na₂-salt** research grade

(α-Carboxybenzylpenicillin-disodium salt)

C₁₁H₁₆N₂O₆S·Na₂ ♦ M_r 422.37 ♦ CAS [4800-94-6]**DANGER**

H317-H334 ♦ EINECS 225-360-8 ♦ WGK 1 ♦ HS 29411000

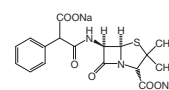
Storage temperature +2 °C to +8 °C

Semisynthetic derivative of benzylpenicillin G. Inhibitor of bacterial cell wall synthesis. Active above all against gram-negative bacteria, less against gram-positive. Used in molecular biology for selection of resistant strains (2). In plant cell culture often in combination with streptomycin or nystatin to prevent bacterial contamination (3,4). Effect on somatic embryo genesis (5).

References:

1. Butler et al. (1970) J. Infect. Dis. **122**, Suppl. 81
2. Sambrook, J. et al. (2001) A Laboratory Manual, 3rd ed., Cold Spring Harbor, NY
3. Horsch, R.B. a. King, J. (1983) Plant Cell Tiss. Organ Cult. **2**, 21-8
4. Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
5. Sarma, K.S. Et al. (1995) J. Exp. Bot. **46**, 1779-81

Cat.No.	Size	EUR
15875.01	250 mg	19,00
15875.02	1 g	44,00
15875.03	5 g	165,00

■ **Carbonic anhydrase from bovine erythrocytes**

ca. 1.5 U/mg lyophil.

(Carbonate dehydratase; Carbonate hydrolyase)

EC 4.2.1.1. ♦ M_r ca. 29 000 ♦ CAS [9001-03-0]**DANGER**

H334 ♦ EINECS 232-576-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Contains carbonic anhydrases A and B; both forms have similar high specific activities and therefore belong to the C-group of mammalian carbonic anhydrases (1).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole 4-nitrophenyl acetate per minute at 25 °C, pH 7.6 (2).**Activity in other units:** ca. 4000 Wilbur-Anderson units/mg (3).**References:**

1. Lindskog, S. et al. (1971) The Enzymes (Boyer, P.D., ed.) **5**, 587-665
2. Armstrong, J. McD. et al. (1966) J. Biol. Chem. **241**, 5137-49
3. Wilbur, K.M. & Anderson, N.G. (1948) J. Biol. Chem. **176**, 147-54

Cat.No.	Size	EUR
15882.01	25 mg	58,00
15882.02	100 mg	165,00
15882.03	500 mg	675,00

■ **Carbopol® 934** pract.

WGK 1L ♦ HS 39069090

A carboxyvinyl-polymer of Goodrich Chemical Co. with a very high molecular weight. The powder supplied as the free acid is soluble in water up to 5 % and forms a solution of fairly low viscosity with pH ca. 3. Upon neutralization with sodium hydroxide a highly viscous gel is formed, even at a concentration of only 0.1 %. Tackifier, emulsion and suspension stabilizer. White, hygroscopic powder, physiologically harmless.

Carbopol = registered trademark of B.F. Goodrich Chemical Co.

Cat.No.	Size	EUR
15885.01	100 g	22,00
15885.02	500 g	73,00

■ **α-Carboxybenzylpenicillin-disodium salt**see 15875 Carbenicillin-Na₂-salt, page 22, 280■ **Carmine** research grade

(Natural Red 4; Aluminum calcium lake of the cochineal dye)

C.I.75470 ♦ CAS [1390-65-4]

EINECS 215-724-4 ♦ WGK 1L ♦ HS 32030010

For application in Orth's lithium carmine staining and Schneider's acetocarmine staining.

Cat.No.	Size	EUR
16180.01	5 g	20,00
16180.02	25 g	69,00

■ **Carrier Ampholytes**

see SERVALYT™ Carrier Ampholytes, page 102, 196

■ Catalase from *Aspergillus niger* ca. 1800 U/mg

lyophil. salt-free

EC 1.11.1.6 ♦ M_r ca. 240 000 ♦ CAS [9001-05-2]

DANGER

H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Catalase is used for the removal of peroxides, the generation of oxygen and, in coupled systems, for the determination of metabolites e.g. uric acid (1). A very stable preparation particularly suitable for immobilization.

Unit definition: 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

References:

1. Bartl, K. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 7, p. 134-46
2. Aebi, H.E. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 3, p. 277-86

Cat.No.	Size	EUR
26905.01	100 mg	30,00

■ Catalase from bovine liver ca. 11 000 U/mg lyophil. salt-free

EC 1.11.1.6 ♦ M_r ca. 240 000 ♦ CAS [9001-05-2]

DANGER

H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Ca. 40 000 U/mg protein.

Unit definition: 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7.0. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed) 3rd Ed. Vol. 2, p. 165-6

Cat.No.	Size	EUR
26910.01	250 mg	80,00
26910.02	1 g	260,00

■ Cathode fluid 10 for IEF



DANGER

H314-H317-H334 ♦ GGVSE/ADR 8 III UN3267 ♦

IATA 8 III UN3267 ♦ WGK 2 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.22 g L-arginine base, 0.18 g L-lysine base, 6.0 ml ethylene diamine in 50 ml water. Recommended for general use with SERVATY™ PRECOTES™.

Cat.No.	Size	EUR
42986.03	50 ml	12,50

■ Cedar wood oil research grade, optically clear

CAS [85085-41-2]

WGK 2 ♦ HS 33019090

Immersion oil for microscopy.

Density (20 °C) 0.98 - 1.00

Refractive index (20 °C) 1.510 - 1.520

Cat.No.	Size	EUR
38565.01	50 ml	20,00
38565.02	500 ml	34,00

■ Cefotaxime-Na-salt research grade

(Claforan)

C₁₆H₁₆N₄O₇S₂Na ♦ M_r 477.5 ♦ CAS [64485-93-4]

EINECS 264-915-9 ♦ WGK 1 ♦ HS 29419000

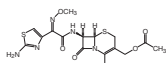
Storage temperature +2 °C to +8 °C

Cephalosporin derivative; β-lactamase resistant antibiotic. Effective against gram-positive and gram-negative bacteria (1). Optimal pH for stability in aqueous solution, 4.3 - 6.2 (2).

References:

1. Young, P.M. et al. (1984) Plant Sci. Lett. **34**, 203-9
2. Das Gupta, V. (1984) J. Pharm. Sci. **73**, 565-7

Cat.No.	Size	EUR
16382.02	1 g	73,00



■ Celite™ 545 analytical grade

CAS [68855-54-9]



WARNING

H373 ♦ EINECS 272-489-0 ♦ WGK - ♦ HS 38029000

Acid washed, fine particles removed.

Celite™ = registered trademark of Manville Corp.

Cat.No.	Size	EUR
16392.02	100 g	81,00

■ Celite™ 545 pract.

CAS [68855-54-9]



WARNING

H373 ♦ EINECS 272-489-0 ♦ WGK - ♦ HS 38029000

Purified and calcined, average particle size 0.02 - 0.08 mm.

Celite™ = registered trademark of Manville Corp.

Cat.No.	Size	EUR
16391.02	2 kg	22,00

■ D-Cellobiose analytical grade

(4-O-β-D-Glucopyranosyl-D-glucose)

C₁₂H₂₂O₁₁ ♦ M_r 342.3 ♦ CAS [528-50-7]

EINECS 208-436-5 ♦ WGK 1 ♦ HS 29400000

For bacteriology. Substrate for β-glucosidase.

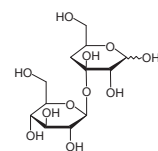
Purity (HPLC) min. 98.0 %

MP 240 °C (dec.)

[α]_D²⁰ °C/D (c=1 in water) +33.0 ° to +35.0 °

References:

1. Michalski, Ch. & Domnas, A. (1974) Carbohydr. Res. **33**, 153-70



Cat.No.	Size	EUR
16400.01	10 g	25,00
16400.02	50 g	89,00

■ Cellulase »Onozuka« from *Trichoderma viride* 1 U/mg

Special quality for ELOS analysis by VDLUFA

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦

HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Recommended quality for ELOS analysis by VDLUFA.

Temperature optimum: 40 - 50 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (2).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 μmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
16418.01	2,5 g	37,00
16418.02	10 g	105,00
16418.03	50 g	425,00

Cellulase »Onozuka« R-10 from *Trichoderma viride* ca. 1 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 40 - 50 °C**pH-optimum:** pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 μmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16419.02	2,5 g	38,00
16419.03	10 g	108,00
16419.05	50 g	435,00

Cellulase »Onozuka« RS from *Trichoderma viride* ca. 2 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity (EC 3.2.1.4), it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Contains about three times as high xylanase activity as Cellulase Onozuka R-10 (cat. no. 16419). Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 50 - 60 °C**pH-optimum:** pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: Contains α-amylase, pectinase, protease and hemicellulase.

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16420.01	1 g	42,00
16420.02	5 g	134,00

Cellulase from *Trichoderma viride* ca. 0.2 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

An enzyme complex derived from the fermentation of a selected strain. Hydrolyzes or degrades cellulosic materials from a wide variety of sources depending on enzyme dosage, reaction conditions and the type of material being treated. Besides a high cellulase activity (EC 3.2.1.4) the preparation exhibits hemicellulase and amylase activity. Another feature is its macerage activity which is capable of cell wall decomposition.

Temperature optimum: 50 - 60 °C**pH-optimum:** pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (1).

Extraneous activities: contains α-amylase, pectinase, protease and hemicellulase.

References:

1. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-263

Cat.No.	Size	EUR
16427.01	50 g	50,00
16427.02	250 g	190,00

Cellulose microcrystalline ca. 0.02 mm research grade

(Avicel PH 105®; previously Avicel TG 104; Avicel SF)

CAS [9004-34-6]

EINECS 232-674-9 ♦ WGK - ♦ HS 39129090

Suitable for TLC, no binder required.

Avicel = registered trademark of FMC, Brussels.

Cat.No.	Size	EUR
14205.02	1 kg	46,00

CentriPure/CentriSpin Gelfiltration Columns

see Chapter Sample Preparation, page 152

Cellulose microcrystalline ca. 0.05 mm research grade

(Avicel PH 101®; previously Avicel TG 101; Avicel PH)

CAS [9004-34-6]

EINECS 232-674-9 ♦ HS 39129090

Ph. Eur., USP/NF

Avicel = registered trademark of FMC, Brussels.

Cat.No.	Size	EUR
14204.02	1 kg	41,00
14204.03	20 kg	480,00
14204.04	5 kg	127,00

Cerulenin from *Cephalosporium caerulens* research grade

C₁₂H₁₇NO₃ ♦ M_r 223.27 ♦ CAS [17397-89-6]

WARNING

H302-H312-H332 ♦ EINECS 241-424-8 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Antifungal antibiotic that inhibits sterol and fatty acid biosynthesis. Inhibits HMG-CoA synthetase activity. Induces apoptosis in tumor cell lines. Packaged under argon.

Protect from light!

Assay (TLC) min. 98.0 %

References:

1. Omura, S. (1976) Bacteriol. Rev. **40**, 681-697
2. Buttke, T.M. a. Ingram, L.O. (1978) Biochemistry **17**, 5282-6
3. Omura, S. (1981) Meth. Enzymol. **72**, 520-32
4. Pizer, E.S. et al. (1996) Cancer Res. **56**, 2745-7
5. Fuuya, Y et al. (1997) Anticancer Res. **17**, 4589-93

Cat.No.	Size	EUR
16487.01	1 mg	33,00

Cesium chloride analytical grade

CsCl $\diamond$ M_r 168.4 $\diamond$ CAS [7647-17-8]

EINECS 231-600-2 $\diamond$ WGK 1 $\diamond$ HS 28273985

For density gradient centrifugation. Cesium chloride is probably the most widely used density gradient medium. It gives shallow gradients and is good for fractionating molecules which are dispersed in density. It has been used in the isolation of nucleic acids (including double-stranded RNA and closed circular DNA) as well as ribosomal subunits, proteins, glycoproteins and viruses.

SERVA analytical grade CsCl offers outstanding quality:

Results are not adversely affected by the presence of contaminants.

Extremely low absorbance: largely devoid of interfering components which can absorb in the UV range, A₂₆₀ of a 50 % solution in water max. 0.02 (1 cm light path).

Assay	min. 99.9 %
A 1 cm/50 % in water/260 nm	max. 0.02
Heavy metals (Pb)	max. 1 ppm

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (7.19-7.22, 1.42-1.45, 2.79)
2. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
15554.02	50 g	32,50
15554.03	250 g	120,00
15554.04	1 kg	405,00

Cetalkonium chloride

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

Cetrimide C16

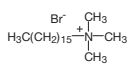
see 16530 Cetyltrimethylammonium-bromide, page 25, 142, 245, 295

Cetyltrimethylammonium chloride

see 14836 Benzyltrimethyl-n-hexadecyl ammonium chloride, page 17, 142, 244

Cetyltrimethylammonium-bromide cryst. pure

(CTAB; Cetrimide C16; Cetrimonium bromide; Hexadecyltrimethyl ammonium-bromide; Palmityltrimethylammonium-bromide)



$C_{19}H_{42}N^+Br^-$ $\diamond$ M_r 364.46 $\diamond$ CAS [57-09-0]



WARNING

H302-H315-H319-H400-H410 $\diamond$ GGVSE/ADR 9 III UN3077 $\diamond$ IATA 9 III UN3077 $\diamond$ EINECS 200-311-3 $\diamond$ WGK 3L $\diamond$ HS 29239000

Cationic surfactant used instead of SDS in electrophoresis of highly charged and membrane protein subunits (1). Surfactant for modifying silica for HPLC (2). Suitable for cell permeabilization (3) and DNA isolation (4). Increases the efficiency of chemiluminescence (5, 6).

Assay (titr.)	min. 99.0 %

References:

1. Eley, M. et al. (1979) Anal. Biochem. **92**, 411-9
2. Hansen, S.H. et al. (1981) J. Chromatogr. **210**, 453-60
3. Joshi, M.S. et al. (1989) Biotechnol. Lett. **11**, 349-52
4. Milligan, B.G. (1989) Plant Mol. Biol. Rep. **7**, 144-9
5. Abdel-Latif, M.S. & Guibault, G.G. (1989) Anal. Chim. Acta **221**, 11-7
6. Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
16530.04	100 g	18,00
16530.02	500 g	56,00

CHAPS

see 17038 3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate, page 26, 143, 245

Chemiluminescence Substrate Kits

see 42584 SERVALight Polaris CL HRP WB Substrate Kit, page 101, 222, 348

China Blue

see 13645 Aniline Blue, page 13, 369

Chloramphenicol research grade

(Chloromycetin; D-threo-2,2-Dichloro-N-[β-hydroxy-α(hydroxymethyl)-β-(4-nitrophenyl)ethyl]acetamide; D-threo-2-Dichloroacetamido-1-(4-nitrophenyl)-1,3-propanediol)

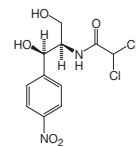
$C_{11}H_{12}Cl_2N_2O_5$ $\diamond$ M_r 323.1 $\diamond$ CAS [56-75-7]



DANGER

H317-H334-H340-H350-H361d $\diamond$

EINECS 200-287-4 $\diamond$ WGK 3 $\diamond$ HS 29414000



Ph. Eur. Blocks bacterial protein synthesis by inhibiting the peptidyl transferase activity of the 50S ribosomal subunit. Determination in serum by HPLC (1,2), in meat (3). Molecular basis for chloramphenicol resistance (5,6), effects on plants (7). Used for the selection of clones (8).

Assay (UV)	98.0 - 102.0 %

References:

1. Wal, J. et al. (1978) J. Chromatogr. **145**, 502-6
2. Danzer, L.A. (1983) Clin. Chem. **29**, 856-8
3. Rüssel, H. (1978) Chromatographia **11**, 341-3
4. Long, K.S. a. Porse, B.T. (2003) Nucl. Acids Res. **31**, 7208-15
5. Izard, T. (2001) Protein Sci. **10**, 1508-13
6. Schwarz, S. et al. (2004) FEMS Microbiol. Rev. **28**, 519-42
7. Zhu, H. et al. (2011) Int. J. Agric. Biol. **13**, 677-82
8. Munshi, T. et al. (2013) PLOS ONE **8**(3):e60143

Cat.No.	Size	EUR
16785.03	25 g	15,00
16785.02	100 g	39,00

L-1-Chloro-3-tosylamido-4-phenyl-2-butanone

research grade

(TPCK; Nα-p-Tosyl-L-phenylalanine chloromethylketone)

$C_{17}H_{18}ClNO_3S$ $\diamond$ M_r 351.85 $\diamond$ CAS [402-71-1]

EINECS 206-954-6 $\diamond$ WGK 1 $\diamond$ HS 29350090

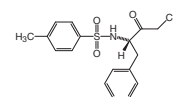
Storage temperature -15 °C to -25 °C

Inactivates chymotrypsin (but not trypsin) by specific reaction with histidine.

Assay (TLC)	min. 98.0 %

References:

1. Ong, E.B. et al. (1965) J. Biol. Chem. **240**, 694-8



Cat.No.	Size	EUR
17016.02	250 mg	38,00

L-1-Chloro-3-tosylamido-7-amino-2-heptanone-HCl

research grade

(TLCK; Nα-p-Tosyl-L-lysine chloromethyl ketone)

$C_{14}H_{21}ClN_2O_3S \cdot HCl$ $\diamond$ M_r 369.31 $\diamond$ CAS [4272-74-6]

EINECS 224-266-4 $\diamond$ WGK 1 $\diamond$ HS 29350090

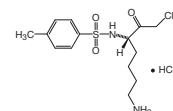
Storage temperature -15 °C to -25 °C

Inactivates trypsin (but not chymotrypsin) by specific reaction with histidine.

Purity (TLC)	one spot

References:

1. Shaw, E. et al. (1965) Biochemistry **4**, 2219-24



Cat.No.	Size	EUR
17013.02	100 mg	65,00
17013.04	250 mg	155,00

Chloroform molecular biology grade

$CHCl_3$ $\diamond$ M_r 119.4 $\diamond$ CAS [67-66-3]



WARNING

H302-H315-H351-H373 $\diamond$ Carc. 2 $\diamond$ MAK/TRK 2.5 mg/m³; 0.5 ml/m³ $\diamond$ EG-Index 602-006-00-4 $\diamond$ GGVSE/

ADR 6.1 III UN1888 $\diamond$ IATA 6.1 III UN1888 $\diamond$ EINECS 200-663-8 $\diamond$ WGK 3L $\diamond$ HS 29031300

Suitable for nucleic acid purification and for removal of traces of phenol from aqueous DNA and RNA samples.

Assay (GC)	99.9 - 100.0 %
Density (20 °C)	1.478 - 1.482
Water	max. 0.05 %
Acidity	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

Cat.No.	Size	EUR
39553.01	250 ml	23,00
39553.02	2,5 L	99,00

■ **Chloroform** analytical gradeCHCl₃ ♦ M_r 119.4 ♦ CAS [67-66-3]**DANGER**H302-H315-H351-H373 ♦ EG-Index 602-006-00-4 ♦
GGVSE/ADR 6.1 III UN1888 ♦ IATA 6.1 III UN1888 ♦

EINECS 200-663-8 ♦ WGK 3 L ♦ HS 29031300

Assay (GC)	min. 99.0 %
Density (20 °C)	1.478 – 1.482
Water	max. 0.05 %
Acidity	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

Cat.No.	Size	EUR
45627.01	250 ml	14,00
45627.02	2,5 L	58,00

■ **Chloroform:Isoamyl alcohol 24:1** molecular biology grade**WARNING**H302-H315-H335-H351-H373 ♦ GGVSE/
ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810 ♦ WGK 3 ♦

HS 38220000

DNase, RNase, Proteases not detected. Mixture of chloroform and isoamyl alcohol (ratio 24:1). Bottled under inert gas. Suitable for nucleic acid purification. Improves efficiency of nucleic acid extraction.

Assay

Chloroform (cat. no. 39553)	min. 99.9 %
Isoamyl alcohol (cat. no. 39557)	min. 99.0 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.3-E.4)

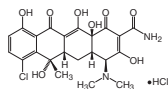
Cat.No.	Size	EUR
39554.02	500 ml	27,00

■ **Chloromycetin**

see 16785 Chloramphenicol, page 25, 283

■ **Chlortetracycline-HCl** research grade

(Aureomycin)

C₂₂H₂₃ClN₂O₈·HCl ♦ M_r 515.3 ♦ CAS [64-72-2]**WARNING**H361d ♦ EINECS 200-591-7 ♦ WGK 1 ♦
HS 29413000

Ph. Eur. Produced by *Streptomyces aureofaciens*. Mixture of antibiotics, main component chlortetracycline-HCl. Was the first tetracycline used in therapy. Tetracyclines are bacteriostatic and active against Gram-positive and Gram-negative bacteria and also against intracellular microorganisms like Rickettsia and mycoplasma. Inhibits bacterial protein synthesis by preventing aminoacyl-RNA binding to the A-side of the 30S ribosomal subunit. Used for fluorescence assays on spermatozoa studies (2,3,4).

Assay (HPLC)	min. 89.5 %
Tetracycline HCl	max. 8.0 %
Sum of both components	94.5 – 102.0 %

References:

1. Soeflor, R.E.B. et al. (1998) Clin. Experiment. Metastasis **16**, 217-25
2. DasGupta, S. et al. (1993) J. Reprod. Fertil. **99**, 135-43
3. Collin, S. et al. (2000) J. Andrology **21**, 938-43
4. Kaneto, M. et al. (2002) Animal Reprod. Sci. **73**, 197-209
5. Lopez, M.I. et al. (2008) J. Agr. Food Chem. **56**, 1553-9

Cat.No.	Size	EUR
14200.02	5 g	20,00

■ **3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate** research grade

(CHAPS)

C₃₂H₅₈N₂O₇S ♦ M_r 614.9 ♦ CAS [75621-03-3]**WARNING**

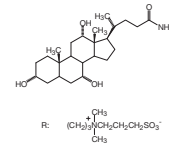
H315-H319-H335 ♦ WGK 1 ♦ HS 29239000

Zwitterionic surfactant. Particularly useful for solubilizing and electrophoresis of membrane proteins (1 - 5). Suitable also for enzyme immunoassay (6).

Assay (from N) min. 97.0 %

References:

1. Hjelmeland, L.M. (1980) Proc. Natl. Acad. Sci. USA **77**, 6368-70
2. Naldini, L. et al. (1990) Biochemistry **29**, 5153-60
3. Kierdaszuk, B. & Eriksson, S. (1990) Biochemistry **29**, 4109-114
4. Bonfils, C. & Combalbert, J. (1990) Electrophoresis **11**, 182-6
5. Ambar, J. et al. (1989) Eur. J. Pharmacol. **170**, 119-20
6. Leblond, F.A. et al. (1989) J. Immunol. Methods **124**, 71-5

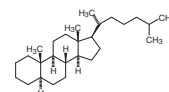


Cat.No.	Size	EUR
17038.01	1 g	19,00
17038.02	5 g	42,00
17038.03	25 g	160,00
17038.04	100 g	575,00

■ **5α-Cholestane** analytical gradeC₂₇H₄₈ ♦ M_r 372.7 ♦ CAS [481-21-0]

EINECS 207-562-8 ♦ HS 29021900

Cat.No.	Size	EUR
17060.02	250 mg	60,00

■ **Cholesterol** cryst. research grade

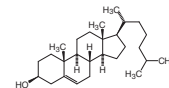
(3β-Hydroxy-5-cholestene; 5-Cholesten-3β-ol)

C₂₇H₄₆O ♦ M_r 386.7 ♦ CAS [57-88-5]

EINECS 200-353-2 ♦ WGK 1L ♦ HS 29061900

Assay (GC) min. 95.0 %

Cat.No.	Size	EUR
17101.01	100 g	55,00

■ **Cholic acid-Na-salt** analytical grade

(Sodium cholate)

C₂₄H₃₉O₅·Na ♦ M_r 430.5 ♦ CAS [361-09-1]

EINECS 206-643-5 ♦ WGK 1 ♦ HS 29181930

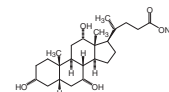
Important surfactant in membrane chemistry. Excellent solubilizer for receptors, pigments and phospholipids.

Assay (titr.) 98.0 – 101.0 %

References:

1. Helenius, A. et al. (1979) Methods Enzymol **56**, 734-49
2. Lopez-Corcuera, B. & Aragon, C. (1989) Eur. J. Biochem. **181**, 519-24
3. Kavanaugh, M.P. et al. (1989) J. Neurochem. **53**, 1575-80
4. Malloy, R.C. & Binford, J.S. Jr. (1990) J. Phys. Chem. **94**, 337-45

Cat.No.	Size	EUR
17126.02	100 g	49,00
17126.03	500 g	222,00

■ **Choline-chloride** research grade

(N-(2-Hydroxyethyl)trimethylammonium-chloride)

C₅H₁₄ON⁺Cl⁻ ♦ M_r 139.6 ♦ CAS [67-48-1]

EINECS 200-655-4 ♦ WGK 1L ♦ HS 29231000

DAC. Tested for its suitability in tissue culture.

Assay (titr.) 98.0 – 100.5 %

Cat.No.	Size	EUR
17130.04	500 g	52,00

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24 hours per day, 7 days a week.

Chromomycin A₃ research grade

C₅₇H₈₂O₂₆ ♦ M_r 1183.3 ♦ CAS [7059-24-7]



DANGER
H300-H310-H330-H360D ♦
GGVSE/ADR 6.1 I UN2811 ♦

IATA 6.1 I UN2811 ♦ EINECS 230-348-0 ♦ WGK 3L ♦
HS 29419000

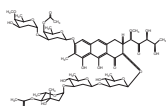
Storage temperature +2 °C to +8 °C

Inhibitor of DNA-dependent RNA-synthesis (1). For fluorescent chromosome banding (2).

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Schweizer, D. (1976) Chromosoma (Berl.) **58**, 307-24

Cat.No.	Size	EUR
17148.01	10 mg	150,00



Chromotrope FB

see 14410 Azorubin, page 16, 369

Chymostatin research grade

(((S)-1-Carboxy-2-phenylethyl)-carbamoyl-α-2-imino-hexahydro-4(S)-pyrimidinyl)-(S)-glycyl-X-phenylalaninal)
CAS [9076-44-2]

HS 29241900

Storage temperature -15 °C to -25 °C

Mixture of 3 components differing in amino acid composition at position X with component A as major form (approx. 70 %):

Component A (C₃₁H₄₁N₇O₆;
Mr: 607.7): X = L-Leu

Component B (C₃₀H₃₉N₇O₆;
Mr: 593.7): X = L-Val

Component C (C₃₁H₄₁N₇O₆;
Mr: 607.7): X = L-Ile

Inhibitor of many proteinases e.g. chymotrypsin, chymotrypsin-like serine proteinases and lysosomal cysteine proteinases e.g. cathepsins B, H, and L (1, 2). Inhibits eosinophil peroxidase release from activated human eosinophils (3). Inhibitor of mammalian protein methylesterase activity (4). Effects on globin hydrolysis by cultured malaria parasites (5). Specific inhibitor of a chymostatin sensitive angiotensin II generating enzyme (6, 7).

References:

1. Tatsuta, K. et al. (1973). J. Antibiot. **26**, 625-46
2. Stein, R.L. & Strimpler, A.M. (1987) Biochemistry **26**, 2611-5
3. Matsunaga, Y. et al. (1994) Arch. Biochem. Biophys. **312**, 67-74
4. Veeraragavan, K. & Gagnon, C. (1987) Biochem. Biophys. Res. Commun. **142**, 603-8
5. Rosenthal, P.J. (1995) Exp. Parasitol. **80**, 272-81
6. Okunishi, H. et al. (1993) Jpn. J. Pharmacol. **62**, 207-10
7. Okamura, T. et al. (1990) J. Cardiovasc. Pharmacol. **15**, 353-9

Cat.No.	Size	EUR
17158.01	5 mg	65,00
17158.02	25 mg	275,00

α-Chymotrypsin from bovine pancreas min. 40 U/mg powder

EC 3.4.21.1 ♦ M_r ca. 25 000 ♦ CAS [9004-07-3]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-011-00-2 ♦
EINECS 232-671-2 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Chymotrypsin A (1). Suitable for the structural elucidation of proteins. Catalyzes the hydrolysis of peptide and ester bonds at the carboxyl group of a variety of amino acids primarily those with aromatic or long aliphatic side chains (2).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-benzoyl-L-tyrosine ethyl ester (BTEE) per minute at 25 °C, pH 7.8 (3).

Activity in other units: ca. 1000 USP units/mg (1 USP unit causes decrease in absorbance at 237 nm of 0.0075 per minute at 25 °C, pH 7.0 with ATEE as substrate) (4).

References:

1. Desnuelle, P. & Røvery, M. (1961) Adv. Protein Chem. **16**, 139-95
2. Desnuelle, P. (1960) The Enzymes 2nd Ed. **4**, 93-118
3. Kang, S.H. & Fuchs, M.S. (1973) Anal. Biochem. **54**, 262-5
4. USP XXI/NF XVI (1984) United States Pharmacopeial Convention, 216-7

Cat.No.	Size	EUR
17160.01	100 mg	15,00
17160.02	500 mg	46,00

Chymotrypsinogen A from bovine pancreas

ca. 60 U/mg lyophil. salt-free

M_r ca. 25 000 ♦ CAS [9035-75-0]

EINECS 232-905-3 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Inactive precursor of chymotrypsin (1, 2).

Unit definition: see cat. no. 17160 (chymotrypsin activity after activation by trypsin).

Activity in other units: ca. 1 200 USP units/mg (potential activity) and ca. 10 USP units/mg (native activity). USP units see cat. no. 17160.

Extraneous activity: ca. 1 U/mg α-chymotrypsin before trypsin activation.

References:

1. Desnuelle, P. & Røvery, M. (1961) Adv. Protein Chem. **16**, 139-95
2. Wilcox, P.E. (1970) Methods Enzymol. **19**, 64-80

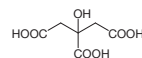
Cat.No.	Size	EUR
17200.03	500 mg	68,00

Citric acid-H₂O analytical grade

C₆H₈O₇·H₂O ♦ M_r 210.1 ♦ CAS [5949-29-1]



WARNING
H319 ♦ EINECS 201-069-1 ♦ WGK 1 ♦
HS 29181400



For buffers.

Assay (hydrate) 99.5 - 101.0 %

Cat.No.	Size	EUR
38640.01	500 g	14,00
38640.02	1 kg	19,00
38640.03	5 kg	65,00

Citric acid-Na₃-salt-2H₂O analytical grade

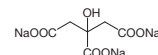
(tri-Sodium citrate)

C₆H₅O₇·Na₃·2H₂O ♦ M_r 294.1 ♦ CAS [6132-04-3]

EINECS 200-675-3 ♦ WGK 1L ♦ HS 29181500

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %



Cat.No.	Size	EUR
38642.02	1 kg	28,00
38642.03	5 kg	110,00

L-Citrulline research grade

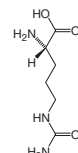
(L-2-Amino-5-ureido valeric acid)

C₆H₁₃N₃O₃ ♦ M_r 175.19 ♦ CAS [372-75-8]

EINECS 206-759-6 ♦ WGK 1 ♦ HS 29241900

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
17311.02	100 g	95,00

Claforan

see 16382 Cefotaxime-Na-salt, page 23, 281

CleanGel 10 % 25S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 25 slots for 15 μl.

Cat.No.	Size	EUR
43338.01	4 gels	138,00

CleanGel 10 % 52S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 52 slots for 6 µl.

Cat.No.	Size	EUR
43340.01	4 gels	138,00

CleanGel IEF for PhastSystem™ Size: 50 x 42 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

20 rehydratable gels, 5 % T.

Cat.No.	Size	EUR
43350.01	20 gels	187,00

Cleland's reagent

see 20710 Dithiothreitol, page 39, 147

Cleland's reagent

see 20697 Dithioerythritol, page 38, 147

Clostridiopeptidase A

see 17458 Collagenase NB 6 GMP Grade from *Clostridium histolyticum*, page 30, 272, 316, 332

Clostridiopeptidase A

see 17465 Collagenase NB 4G Proved Grade from *Clostridium histolyticum*, page 30, 271, 315, 331

Clostridiopeptidase A

see 17455 Collagenase NB 1 Premium Grade from *Clostridium histolyticum*, page 29, 271, 314, 330

Clostridiopeptidase A

see 17452 Collagenase NB 1 GMP Grade from *Clostridium histolyticum*, page 29, 271, 315, 331

Clostridiopeptidase A

see 17454 Collagenase NB 4 Standard Grade from *Clostridium histolyticum*, page 29, 271, 315, 331

Clostridiopeptidase A

see 17459 Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*, page 30, 272, 315, 331

Clostridiopeptidase A

see 17456 Collagenase NB 8 Broad Range from *Clostridium histolyticum*, page 30, 272, 316, 332

Clostripain NB from *Clostridium histolyticum*

(Clostripain; Clostridiopeptidase B)

EC 3.4.22.8 ♦ M_r ca. 59 000 ♦ CAS [9028-00-6]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-822-2 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Clostripain is a proteinase that cleaves peptide bonds on the carboxyl side of arginine. It is also known as Endoproteinase Arg-C.

Specification:

Enzymatic activity: > 50 U/mg.

Unit definition:

1 U catalyzes the hydrolysis of 1 µmole BAEE per minute at 25 °C, pH 7.6, after activation for 3 hours with 1 mM calcium acetate and 2.5 mM dithiothreitol.

References:

1. Kula et al. (1976) Biochem. Biophys. Res Commun. **69**, 389-396
2. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17335.01	20 mg	360,00
17335.02	50 mg	720,00
17335.03	100 mg	1.050,00

Closures for Dialysis

see Spectra/Por® Closures, page 183, and Universal Closures, page 186

Colcemid

see 18238 Demecolcine, page 34

Colcemid™ solution 10 µg/ml sterile filtered

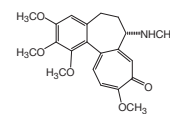
(Demecolcine solution)

HS 38220000

Storage temperature -15 °C to -25 °C

In PBS.

Colcemid = registered trademark of Ciba-Geigy.



Cat.No.	Size	EUR
47253.01	25 ml	23,00

Colchicine cryst. research grade

C₂₂H₂₅NO₆ ♦ M_r 399.44 ♦ CAS [64-86-8]

DANGER

H300-H340 ♦ Muta. 1B ♦

EG-Index 614-005-00-6 ♦

GGVSE/ADR 6.1 I UN1544 ♦ IATA 6.1 I UN1544 ♦

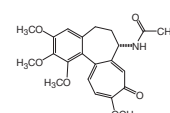
EINECS 200-598-5 ♦ WGK 3L ♦ HS 29399900

USP

Assay (HPLC)

94.0 - 101.0 %

Cat.No.	Size	EUR
77120.01	250 mg	13,00
77120.02	1 g	34,00
77120.03	5 g	135,00



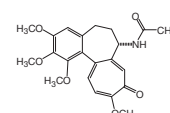
Colchicine solution 10 µg/ml sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

In PBS.

Cat.No.	Size	EUR
47252.01	25 ml	23,00



Colistin sulfate

(Polymyxin E sulfate)

C₅₃H₁₀₄N₁₆O₂₁S₂ ♦ M_r 1365.6 ♦ CAS [1264-72-8]

DANGER

H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦

IATA 6.1 III UN2811 ♦ EINECS 215-034-3 ♦

WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. Peptide antibiotic. Mixture of the sulfates of polypeptides produced by certain strains of *Bacillus polymyxa* var. *colistinus*. Acts mainly against Gram-negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Soluble in water; stable between pH 2 - 6 at 4 °C. Protect from light.

Assay (HPLC)

min. 77.0 %

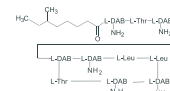
(sum of polymyxins E1, E2, E3,

E1 - I and E1 -7 MOA)

References:

1. Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63

Cat.No.	Size	EUR
17420.01	250 mg	36,00
17420.02	1 g	98,00



Collagen R solution 0.2 % sterile

M_r ca. 300 000

HS 35040090

Storage temperature +2 °C to +8 °C

Type 1 rat tail collagen; 2 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:

1. Miller, E.J. (1976) Mol. Cell. Biochem. **13**, 165-91
2. Strom, S.C. & Michalopoulos, G. (1982) Methods Enzymol. **82**, 544-55

Cat.No.	Size	EUR
47254.01	20 ml	79,00
47254.02	100 ml	324,00

■ Collagen R solution 0.4 % sterile

M_r ca. 300 000

HS 38220000

Storage temperature +2 °C to +8 °C

Type I rat tail collagen; 4 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:

1. Strom, S.C. & Michalopoulos, G. (1982) *Methods Enzymol.* **82**, 544-55
2. Miller, E.J. (1976) *Mol. Cell. Biochem.* **13**, 165-91

Cat.No.	Size	EUR
47256.01	20 ml	143,00

■ Collagenase NB 1 Premium Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3.00 U/mg

Endotoxin: ≤ 10.0 EU/mg (Ph. Eur.)

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB (cat. no. 30301) Collagenase NB 1 Premium Grade is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

For research use only. If cells are intended for transplantation into humans, Collagenase NB 1 GMP Grade (cat. no. 17452) is recommended.

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) *Biochemistry* **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) *Hoppe-Seyler's Z. Physiol. Chem.* **333**, 149-51.

Cat.No.	Size	EUR
17455.03	≥ 2.000 U	870,00

■ Collagenase NB 1 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3000 U/mg

Endotoxin ≤ 10.0 EU/mg (Ph. Eur.)

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB GMP Grade (cat. no. 30303), Collagenase NB 1 GMP Grade is especially applicable to isolation of pancreatic islets of Langerhans.

Collagenase NB 1 GMP Grade is recommended for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definitions:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) *Biochemistry* **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) *Hoppe-Seyler's Z. Physiol. Chem.* **333**, 149-51

Cat.No.	Size	EUR
17452.01	≥ 2.000 U	inquire

■ Collagenase NB 4 Standard Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Suitable for different applications in tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

As Collagenase NB 4 Standard Grade has comparable enzymatic properties to Collagenase NB 5 Sterile Grade (cat. no. 17459) and Collagenase NB 6 GMP Grade (cat. no. 17458), this enzyme might also be used in order to establish applications which have to meet sterile or GMP requirements like tissue engineering and transplantation.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) *Biochemistry* **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) *Hoppe-Seyler's Z. Physiol. Chem.* **333**, 149-51

Cat.No.	Size	EUR
17454.02	500 mg	81,00
17454.01	1 g	139,00

Collagenases:

see special chapter at p. 269

■ Collagenase NB 4G Proved Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenase) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced mix of neutral protease, clostripain and trypsin-like activities.
PZ activity (Wünsch): ≥ 0.18 U/mg
Suitable for isolation of a broad variety of cell types, especially for fibroblasts, human and rodent hepatocytes, frog oocytes and epithelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17465.01	500 mg	91,00
17465.02	1 g	165,00

■ Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Microbiological examination: Sterility, absence of *Clostridia*

Sterile according to Ph. Eur.

For applications where the use of sterile collagenase according to the guidelines of the European Pharmacopoeia is required.
Collagenase NB 5 Sterile Grade is applicable to tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.
See also Collagenase NB 6 GMP Grade (cat. no. 17458).

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17459.03	1 g	263,00

■ Collagenase NB 6 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.100 U/mg

Microbiological examination: Sterility, absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Sterile according to Ph. Eur.

Manufactured according to EU GMP guidelines.

For applications which have to meet GMP requirements like tissue engineering and transplantation.

Collagenase NB 6 GMP Grade is applicable to tissue dissociation such as isolation of human ADSCs, stem cells, chondrocytes, fibroblasts, neuronal and endothelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17458.03	1 g	654,00
17458.04	100 mg	194,00

■ Collagenase NB 8 Broad Range from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains class I and class II collagenase (1) as well as reduced levels of clostripain, trypsin-like activities and neutral protease.
Chromatographically purified.

PZ activity (Wünsch): ≥ 0.90 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Suitable for a broad range of different applications in tissue dissociation such as isolation of rodent pancreatic islets of Langerhans, porcine hepatocytes, cardiomyocytes, tumor cells, muscle cells and human osteoblasts. Increased PZ activity compared to Collagenase NB 4 Standard Grade (cat. no. 17454) and Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17456.01	250 mg	138,00
17456.02	1 g	398,00

Collagenase N Reference Content from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Collagenase activity is re-evaluated quarterly.

Reference substance according to GMP guidelines for enzyme activity determination.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17463.01	>= 50 mg	550,00

Collagenase N Reference Identity from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP guidelines.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17464.01	>= 50 mg	195,00

Anti-Collagenase (*Clostridium histolyticum*), polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB.

IgG fraction purified by Protein G affinity chromatography.

100 µg IgG (1 mg/ml) supplied as solution in PBS with 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Anti-Collagenase polyclonal antibody can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Tested in ELISA and Western blot.

Store aliquots at -15 to -25 °C. Thaw at 4 °C. Avoid freeze and thaw cycles.

Cat.No.	Size	EUR
58050.01	100 µg	342,00

Anti-Collagenase (*Clostridium histolyticum*) HRP, polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB. Conjugated with horseradish peroxidase.

IgG fraction purified by affinity chromatography.

100 µg IgG conjugated with HRP supplied as solution in PBS with 50 % glycerine and 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) HRP polyclonal antibody

is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Tested for ELISA.

Store aliquots at -15 to -25 °C

Cat.No.	Size	EUR
58051.01	100 µg	427,00

Collagenase substrate per E. Wünsch

(4-Phenylazobenzoyloxycarbonyl-Pro-Leu-Gly-Pro-D-Arg)

C₃₈H₅₂N₁₀O₈ ♦ M_r 776.9 ♦ CAS [17011-78-8]

EINECS 241-086-1 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

Purity (HPLC) > 97.0 %

References:

1. Evans, C.H. (1981) Biochem. J. **195**, 677-84

2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

3. Strauch, L. & Vencelj, H. (1967) Hoppe-Seyler's Z. Physiol. Chem. **348**, 465-8

4. Reil-Dlouha, V. et al. (1976) J. Mol. Biol. **107**, 293-305

5. Nagelschmidt, M. et al. (1979) Biochem. Biophys. Acta **571**, 105-11

Cat.No.	Size	EUR
52268.02	50 mg	75,00

Congo Red research grade

(Direct Red 28)

C.I.22120 ♦ C₂₀H₁₂N₆O₆S₂Na₂ ♦ M_r 696.7 ♦

CAS [573-58-0]



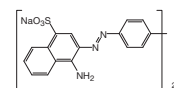
DANGER

H350-H361d ♦ Carc. 1B, Repr. 2 ♦ EG-Index 611-027-00-8 ♦

EINECS 209-358-4 ♦ WGK 2L ♦ HS 32049000

Tested for use in histology. Indicator pH 3.0 - 5.2 blue-reddish orange.

λ_{max} 496 nm.



Cat.No.	Size	EUR
27215.01	25 g	28,00

Cooling Contact Fluid

HS 90272000

Storage temperature +2 °C to +8 °C

Cooling fluid specially formulated for use in horizontal electrophoresis.

Sufficient for running 10 (50 ml) or 30 (150 ml) large format gels or 25 (50 ml) or 75 (150 ml) small format gels.

Cat.No.	Size	EUR
43371.01	50 ml	29,00
43371.02	3 x 50 ml	57,00

Coomassie® Brilliant Blue G 250

C.I. 42655 ♦ C₄₇H₄₈N₃O₇S₂Na ♦ M_r 854.0 ♦

CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue G (cat. no. 35050).

λ_{max} (0.001 %, pH 7)

A 1 cm/λ_{max}/1 % pH 7

Water

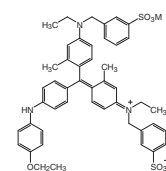
TLC

585 ± 5 nm

ca. 500

max. 10.0 %

corresponds



Cat.No.	Size	EUR
17524.01	25 g	25,00
17524.02	100 g	60,00

Coomassie® Brilliant Blue R 250

C.I. 42660 ♦ C₄₅H₄₄N₃O₇S₂Na ♦ M_r 826.0 ♦

CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue R (cat. no. 35051).

Assay (UV)

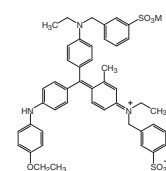
Water (KF)

TLC

min. 75.0 %

max. 10.0 %

corresponds



Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
17525.01	25 g	25,00
17525.02	100 g	60,00

Coprostanol analytical grade

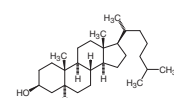
(5β-Cholestan-3β-ol)

C₂₇H₄₈O ♦ M_r 388.7 ♦ CAS [360-68-9]

EINECS 206-638-8 ♦ HS 29061310

Assay (TLC)

homogeneous



Cat.No.	Size	EUR
27225.01	25 mg	108,00

Crystal Violet research grade

(Basic Violet 3; Hexamethylparosaniline-HCl; Gentian Violet 10B; Methyl Violet 10B)

C.I.42555 ♦ C₂₅H₃₀ClN₃ ♦ M_r 408.0 ♦ CAS [548-62-9]



DANGER

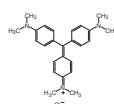
H302-H318-H351-H410 ♦ Carc. 2 ♦

EG-Index 612-204-00-2 ♦ GGVE/ADR 9 III UN3077 ♦ IATA 9 III UN3077 ♦ EINECS 208-953-6 ♦ WGK 3 ♦ HS 32049000

This dye is chemically homogeneous and well-defined, particularly recommended for Flemming and Gram-staining because of reproducible results. Commercial preparations usually contain components of reddish tinge like methyl violet 2B. Indicator pH 0.0 - 1.8.

λ max. 580 - 600 nm

A 1 cm/λ max. (0.0001 % in water) min. 0.17



Cat.No.	Size	EUR
27335.01	25 g	21,00
27335.02	100 g	51,00

CSF Analysis Kit for PhastSystem™

HS 38220000

Storage temperature -15 °C to -25 °C

Contains 10 gels and rehydration solutions for CSF analysis on PhastSystem, format 50 x 42 x 0.43 mm.

Cat.No.	Size	EUR
43393.01	1 kit	265,00

CTAB

see 16530 Cetyltrimethylammonium-bromide, page 25, 142, 245, 295

Cyanase™ Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C *

Supplied as solution in 50 mM Tris-HCl pH 8.0, 5 mM MgSO₄, 50 % (v/v) glycerol.

Cyanase is a cloned highly active non-Serratia based non-specific endonuclease that degrades single and double stranded DNA and RNA in as little as 1 minute.

Cyanase is easily removed from samples after the reaction is finished using the Cyanase Inactivation Resin (cat. no. 18543). The resin can be easily filtered or spun down to remove from the sample removing the Cyanase with it.

Because of its unique properties, Cyanase is effective for cell lysate clearance, protein and viral purification and nucleic acid removal from samples.

- Fastest nuclease on the market
- Broad pH range
- Active in higher salt concentrations
- Unaffected by lysozyme or detergent
- Easily inactivated and removed
- Unsurpassed stability, can be stored up to 1 year at room temperature with minimal loss of activity

Concentration 50 u/μl
pH optimum pH 7.5 - 8.0
Salt optimum 20 mM NaCl
Temperature optimum 24 °C - 37 °C

Unit definition: One Unit is the amount of enzyme that degrades 3 μg of full length λ DNA completely at 37 °C in 1 minute in 50 mM Tris-HCl pH 8.0, 6 mM MnSO₄.

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18542.01	10.000 U	97,00
18542.02	25.000 U	209,00

Cyanase™ Inactivation Resin

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase Inactivation Resin is a proprietary blend of Cyanase Inhibitor Protein coupled to Sepharose® Fast Flow Resin creating a novel method for inactivating and removing the Cyanase enzyme prior to downstream applications. No more worries about downstream contamination with nucleases or difficult removal processes which may compromise product integrity.

Average Particle Size: 90 μm in 50 % buffer slurry.

- Removal of Cyanase Nuclease simple and easy in as little as 20 min.
- No optimization needed
- Active over a wide range of conditions
- No interactions with other proteins or targets
- Extremely tight interaction between Cyanase and resin

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18543.01	1 ml	72,00
18543.02	5 ml	325,00

Cyanase™ Inactivation Resin Cartridges

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase™ Inactivation Cartridges combine 50 μl of Inactivation Resin into a 700 μl silica based spin column for easy removal of Cyanase™ from any reaction. Each spin column is a 10 - 20 μm pore size/polypropylene, snap off base, with sealable screw cap. Reactions are mixed and incubated inside the spin column in the same manner that is used for the standard inactivation resin. After mixing for 20 min, samples are then spun down into a provided collection tube for downstream processing. No worry of contaminating downstream samples with resin, no volume additions!

Can be used for Pre-PCR treatment of high sensitivity assays. Just treat PCR master mix with Cyanase™, add to column, incubate with resin, and spin down into collection tube. Target and Primers are added after treatment and PCR is run as normal.

- Ideal for high throughput proteomics or nucleic acid dependent applications
- Amplicon and Pre-PCR clean up of master mixes
- Treatment of samples of low volume/unique buffer properties where additional buffer/products are problematic

Kit contains 20 cartridges and 20 collection tubes and caps for sample recovery.

Cat.No.	Size	EUR
18544.01	20 reactions	108,00

Cyanocobalamin

see 38310 Vitamin B₁₂, page 121,

Order SERVA products
in bulk quantities
for an even better price.

■ Cycloheximide cryst. pure

(Actidione®; β-[2-(3,5-Dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-glutarimide)

C₁₅H₂₃NO₄ ♦ M_r 281.4 ♦ CAS [66-81-9]



DANGER
H300-H341-H360D-H411
♦ Muta. 2, Repr. 1B ♦

EG-Index 613-140-00-8 ♦ GGVSE/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦ EINECS 200-636-0 ♦ WGK 3L ♦ HS 29419000
Storage temperature +2 °C to +8 °C **

Glutarimide antibiotic isolated from *Streptomyces griseus*; active against fungi and yeasts, but not against bacteria. Inhibits eukaryotic protein synthesis by blocking the translocation step in the elongation cycle (1,3,8). Blocks translation of mRNA on cytosolic but not on mitochondrial or chloroplast ribosomes (2,4,6).

Assay (TLC) min. 95.0 %
Assay (HPLC) min. 90.0 %
MP 98 - 112 °C

Actidione = registered trademark of Upjohn.

References:

- McKeehan, W. a. Hardesty, B. (1969) Biochem. Biophys. Res. Commun. **36**, 625-30
- Neupert, W. et al. (1969) Eur. J. Biochem. **10**, 589-91
- Obrigt, T.G. et al. (1971) J. Biol. Chem. **246**, 174-81
- Avadhani, N.G. a. Buetow, D.E. (1972) Biochem. J. **128**, 353-65
- Jilek, F. et al. (2000) Animal Reprod. Sci. **63**, 101-11
- Hanten, J.J. a. Pierce, S.K. (2001) Biol. Bull. **201**, 34-44
- Jin, S. et al. (2008) Am. J. Physiol. **294**, G928-37
- Schneider-Poetsch, T. et al. (2010) Nat. Chem. Biol. **6**, 209-17

Cat.No.	Size	EUR
10700.04	1 g	34,00
10700.02	5 g	98,00
10700.03	25 g	360,00

■ D-Cycloserine

([(R)-4-Amino-3-isoxazolidinone])

C₃H₆N₂O₂ ♦ M_r 102.1 ♦ CAS [68-41-7]

EINECS 200-688-4 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Antibiotic from *Streptomyces griseus* against mycobacteria. Inhibitor of bacterial cell wall synthesis. Antimetabolite of D-alanine.

Activity min. 900 µg/mg
MP (°C) ca. 150 (dec.)

Cat.No.	Size	EUR
17686.01	1 g	39,00
17686.02	5 g	140,00

■ L-Cysteine·HCl·H₂O cryst. research grade

(Cys·HCl; L-2-Amino-d-mercaptopropionic acid hydrochloride)

C₃H₇NO₂S·HCl·H₂O ♦ M_r 175.6 ♦ CAS [7048-04-6]



WARNING
H315-H319-H335 ♦ EINECS 200-157-7 ♦ WGK 1L ♦ HS 29309016

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
17769.01	25 g	16,00
17769.02	100 g	35,00
17769.03	250 g	67,00
17769.04	1 kg	199,00

■ L-Cystine research grade

((Cys)₂; L-(-)-3,3'-Dithiobis(2-aminopropanoic acid))

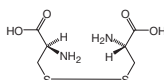
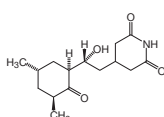
C₆H₁₂N₂O₄S₂ ♦ M_r 240.3 ♦ CAS [56-89-3]

EINECS 200-296-3 ♦ WGK - ♦ HS 29309013

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
17880.01	50 g	20,00
17880.02	250 g	67,00
17880.03	1 kg	195,00



■ Cytochalasin B

C₂₉H₃₇NO₅ ♦ M_r 479.6 ♦ CAS [14930-96-2]



DANGER
H300-H310-H330-H361d ♦
GGVSE/ADR 6.1 II UN2811 ♦

IATA 6.1 II UN2811 ♦ EINECS 239-000-2 ♦ WGK 2 ♦ HS 29339980

Storage temperature +2 °C to +8 °C

From *Helminthosporium dematoides*. Reversible inhibitor of cell motion (1). Inhibits phagocytosis (2). Induces polyploidy (3). Induces nuclear extrusion (4, 5).

Assay (HPLC) > 98.0 %
Assay (TLC) > 98.0 %

References:

- Becker, E. et al. (1972) J. Immunol. **108**, 396-401
- Davis, A. et al. (1971) Proc. Soc. Exp. Biol. Med. **137**, 161-7
- Hoehn, H. et al. (1972) Fed. Proc. **31**, A 607-8
- Krishan, A. (1972) J. Cell Biol. **54**, 657-62
- Prescott, D. (1972) Exp. Cell Res. **71**, 480-3

Cat.No.	Size	EUR
18015.01	1 mg	34,00
18015.02	5 mg	110,00

■ Cytochrome C from horse heart lyophil.

M_r ca. 12400 ♦ CAS [9007-43-6]

EINECS 232-700-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Ca. 10 % may be present in the reduced form. Prepared without the use of TCA.

Assay reduced 90 - 100 %

Cat.No.	Size	EUR
18022.01	25 mg	19,00
18022.02	100 mg	37,00
18022.03	500 mg	143,00

■ D.E.R.® 736 pract.

(ERL-4206 plasticizer)

CAS [9072-62-2]



WARNING
H319 ♦ WGK 1L ♦ HS 39073000

Shorter chain than D.E.R.® 732, lower viscosity, gives less flexible blocks. Epoxy equivalent weight 175 - 205; viscosity 0.03 - 0.06 Pa·s at 25 °C.

Used in electron microscopy.

Density 1.129 - 1.150

D.E.R.® is a registered trademark of Dow Chemical Company, USA.

References:

- Kushida, H. (1966) J. Electron. Microsc. **16**, 278-80

Cat.No.	Size	EUR
18247.01	100 ml	27,00

■ DAB

see 18865 3,3'-Diaminobenzidine-4HCl·xH₂O, page 36, 344, 368, 370

■ Dactinomycin

see 10710 Actinomycin D, page 5, 286

■ DAPI

see 18860 4',6'-Diamidino-2-phenylindole:2HCl, page 36, 370

■ DDSA

see 20755 2-Dodecenylsuccinic acid anhydride, page 39, 360

■ Decal pract.



WARNING
H315-H319-H335 ♦ GGVSE/ADR 8 III UN1789 ♦ IATA 8 III UN1789 ♦ WGK 1 ♦ HS 38220000

For the rapid decalcification of histological sections. Contains max. 9.5 % hydrochloric acid and a catalytic calcium ion-chelating agent.

Cat.No.	Size	EUR
18140.02	500 ml	39,00

Decalcifier concentrate plus indicator

HS 38220000

pH-neutral decalcifying solution on the basis of an organic chelating agent. Depending on the calcium content the working concentration is 1:1 – 1:10. The solution contains an indicator, which changes the colour from purple to red, if the decalcifying solution is exhausted.

Cat.No.	Size	EUR
18141.01	100 ml	24,00

3-(Decyldimethylammonio)propanesulfonate inner salt

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate

see 20756 Sulfobetaine SB 3-10, page 109, 145, 251

Delect Buffer Kit pH 7.3

HS 38220000

Buffer system for DNA electrophoresis and native anodal protein electrophoresis in CleanGels. Contains gel rehydration buffer, anode buffer, cathode buffer, cooling contact fluid and electrode wicks.

Cat.No.	Size	EUR
43355.01	1 kit	80,00

Demecolcine research grade

(Colcemid; N-Deacetyl-N-methylcolchicine)

C₂₁H₂₅NO₅ ♦ M_r 371.42 ♦ CAS [477-30-5]

DANGER

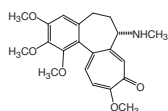
H300-H330 ♦ GGVSE/ADR 6.1 II UN1544 ♦ IATA 6.1 II UN1544 ♦ EINECS 207-514-6 ♦

WGK 3L ♦ HS 29399900

Assay (HPLC)

min. 97.0 %

Colcemid = registered trademark of Ciba-Geigy.



Cat.No.	Size	EUR
18238.01	5 mg	57,00
18238.03	25 mg	173,00

Demecolcine solution

see 47253 Colcemid™ solution 10 µg/ml, page 28

Denhardt's solution, 50x concentrate molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

DNase/RNase not detected. 0.2 µm filtered.

Suitable for nucleic acid hybridization. Denhardt's solution is a mixture of blocking agents capable of saturating non-specific binding sites and to be used in membrane-based hybridization protocols. It is recommended for use with nylon membranes.

Composition:

Albumin Fraction V	0.1 g/10 ml
Polyvinylpyrrolidone	0.1 g/10 ml
Ficoll® 400	0.1 g/10 ml

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (9.48-50, B.15)
2. Denhardt, D.T., (1966) Biochem. Biophys. Res. Commun. **23**(5), 641-646

Cat.No.	Size	EUR
39603.01	10 ml	36,50
39603.02	5 x 10 ml	95,00

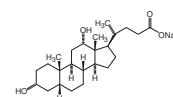
Deoxycholic acid-Na-salt pure

(Sodium deoxycholate)

C₂₂H₃₉O₄·Na ♦ M_r 414.6 ♦ CAS [302-95-4]

WARNING

H302 ♦ EINECS 206-132-7 ♦ WGK 1 ♦ HS 29181930



For bacteriology and enzymology. Suitable for solubilization of many membrane proteins and phospholipids.

Assay (titr.)	min. 99.0 %
A 1 cm/1 % in water	
230 nm	max. 0.5
260 nm	max. 0.2
280 nm	max. 0.1
Loss on drying (2 h, 100 °C)	max. 5.0 %
Heavy metals (Pb)	max. 50 ppm

References:

1. McKernan, R.M. et al. (1989) J. Neurochem. **52**, 777-85
2. Bayerl, T.M. et al. (1989) Biochim. Biophys. Acta **984**, 214-24

Cat.No.	Size	EUR
18330.02	25 g	25,00
18330.03	100 g	75,00

Deoxyribonuclease I from Bovine Pancreas

min. 3000 Kunitz units/mg lyophil.

(DNase I; Deoxyribonucleodepolymerase; Deoxyribonuclease 5'-oligo-nucleotide hydrolase)

EC 3.1.21.1 ♦ M_r 31 000 ♦ CAS [9003-98-9]

EINECS 232-667-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Cleaves preferentially double-stranded DNA (in the presence of Mg⁺⁺-ions single stranded DNA) in oligonucleotides with 5'-terminal phosphate groups.

Unit definition: 1 Kunitz unit catalyzes an increase in absorption of 0.001 at 260 nm per minute at 25 °C, pH 5.0 when acting on highly polymerized calf thymus DNA (1).

Activity: min. 3000 Kunitz units/mg lyophilisate

References:

1. Kunitz, M. (1950) J. Gen. Physiol. **33**, 349-62
2. Laskowski, M. Sr. (1971) The Enzymes **IV**, 3rd Ed. (Boyer, P.D.ed.) Acad. Press N.Y. 289-311
3. Moore, S. (1981) The Enzymes **XIV**, 3rd Ed. (Boyer, P.D. ed.) Acad. Press N.Y. 281-96
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.83, 10.6-10.12, 15.14, 15.16, 15.27-15.31, 13.24-13.25, 13.28-13.29)

Cat.No.	Size	EUR
18535.01	25 mg	45,00
18535.02	100 mg	135,00

Deoxyribosylthymine

see 18600 2'-Deoxythymidine, page 34

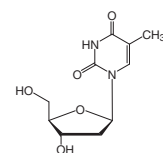
2'-Deoxythymidine analytical grade

(2'-dThd; Deoxyribosylthymine; Thymidine; 5-Methyl-uracil-2'-deoxyriboside)

C₁₀H₁₄N₂O₅ ♦ M_r 242.2 ♦ CAS [50-89-5]

EINECS 200-070-4 ♦ WGK 1 ♦ HS 29349990

Assay (HPLC) min. 98.0 %



Cat.No.	Size	EUR
18600.02	1 g	27,00
18600.03	5 g	117,00

DEPC

see 18835 Diethyl pyrocarbonate, page 36, 295

DePeX



DANGER

H226-H315 ♦ GGVSE/ADR 3 III UN1307 ♦ IATA 3 III UN1307 ♦ WGK 2 ♦

HS 38220000

Mounting medium for histology. Refractive index 1.52 - 1.53. Neutral solution of polystyrene and plasticizers in xylene.

Cat.No.	Size	EUR
18243.01	100 ml	14,00
18243.02	500 ml	52,00

■ Dermatan Sulfate Standard pure

CAS [54328-33-5]

HS 29389090

Storage temperature +2 °C to +8 °C

Suitable for applications such as identification of dermatan sulfate impurities in unfractionated and fractionated heparins by CE, ¹H NMR spectroscopy and other analytical methods. Applicable to analytic method validation and system suitability test (SST). Dermatan Sulfate Standard is highly purified ($\geq 95\%$) from impure crude heparin.

Cat.No.	Size	EUR
31255.01	25 mg	54,00
31255.02	100 mg	169,00
31255.03	250 mg	398,00

■ Detergent 7 X[®] neutral, phosphate-free

WGK 1 ♦ HS 34022090

For tissue culture and molecular biology. Highly active cleaning material, guaranteed to be non-toxic for even the most sensitive organisms.

7 X = registered trademark of ICN Pharmaceuticals Inc.

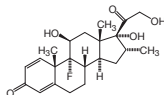
Cat.No.	Size	EUR
34205.01	1 L	18,00
34205.02	10 L	74,00
34205.03	10 x 10 L	565,00

■ Detergent Sampler

see 20785 SERVA BN PAGE Detergent Sampler, page 91, 145

■ Dexamethasone research grade

(9 α -Fluoro-11 β ,17,21-trihydroxy-16 α -methyl-1,4-pregnadiene-3,20-dione; Prednisolone F; 1,4-Pregnadiene-3,20-dione-9 α -fluoro-16 α -methyl-11 β ,17 α ,21-triol; 9 α -Fluoro-16 α -methylprednisolone (3,20-dione))



C₂₂H₂₉FO₅ ♦ M_r 392.5 ♦ CAS [50-02-2]

DANGER

H315-H319-H335-H360Df ♦ EINECS 200-003-9 ♦ WGK 1 ♦ HS 29372100

Selectively regulates the activity of enzymatic markers of cerebral endothelial cell lines (1). Inhibits the expression of the inducible but not the constitutive nitric oxide synthase in vascular endothelial cells.

Assay (UV) 97.0 - 103.0 %

References:

1. Jaullerat-Jeanneret, L. et al. (1992) In Vitro Cell Dev. Biol. **28A**, 537-43
2. Radomski, M.W. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10043

Cat.No.	Size	EUR
18660.01	100 mg	15,00
18660.02	1 g	68,00

■ DEAE-Dextran research grade

M_r Made from Dextran of molecular weight of approx. 150 000.

WGK 2L ♦ HS 38210000

DEAE-Dextran is used for transfection in mammalian cell culture. The method is suitable for transient expression of cloned genes, but not for stable transformation of cells. Some cell types like BSC-1 cannot be exposed to calcium phosphate because of its toxicity.

But DEAE-Dextran is as well toxic for cells and therefore this transfection method can only be used for certain cell types, e.g. CV-1 and COS cells. Another advantage of DEAE-Dextran transfection is the necessary lower DNA amount compared to calcium phosphate.

Nitrogen assay 3.0 - 3.8 %

Loss on drying max. 10 %

References:

1. Sambrook, J., Fritsch, E.F. & Maniatis, T. (1989) Molecular Cloning: A Laboratory Manual, 2nd Edition S. 16.41-16.46. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York.

Cat.No.	Size	EUR
18686.01	25 g	33,00
18686.02	100 g	95,00

■ Dextran sulfate 500-Na-salt stabilized (0.5 - 2 % phosphate)

M_r ca. 500 000 ♦ CAS [9011-18-1]

EINECS 232-677-5 ♦ HS 39139000

Contains 0.5 - 2 % phosphate for stabilization. Special quality for the precipitation of lipoproteins (1, 2). Ribonuclease inhibitor (3). For reinforcing plaque formation by EMC-virus (4). For accelerating DNA hybridization (5).

References:

1. Dangerfield, W.G. & Faulkner, G. (1964) Chim. Acta **10**, 123-33
2. Wieland, H. & Seidel, D. (1973) Clin. Chem. **19**, 1139-41
3. Ascione, R. & Arlinghaus, R.B. (1970) Biochim. Biophys. Acta **204**, 478-88
4. Takemoto, K.K. & Liebhafner, H. (1962) Virology **17**, 499-501
5. Wahl, G.M. et al. (1979) Proc. Natl. Acad. Sci. USA **76**, 3683-7

Cat.No.	Size	EUR
18706.01	25 g	48,00
18706.02	50 g	85,00
18706.03	100 g	153,00

■ Dextran FP 40 research grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Ph. Eur.

Molecular weight 35 000 - 45 000

Loss on drying max. 7.0 %

Sulfated ash max. 0.3 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
18665.01	100 g	35,00
18665.02	500 g	115,00

■ Dextran 4 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight ca. 4000

Cat.No.	Size	EUR
18687.01	100 g	56,00
18687.02	500 g	205,00

■ Dextran 8 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 8 000 - 12 000

Cat.No.	Size	EUR
18689.01	100 g	61,50
18689.02	500 g	215,00

■ Dextran 100 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight 100 000 - 200 000

Cat.No.	Size	EUR
18693.01	100 g	63,00
18693.02	500 g	228,00

■ Dextran 500 technical grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Molecular weight ca. 500 000

Cat.No.	Size	EUR
18696.01	100 g	140,00
18696.02	500 g	560,00

■ Dextrose

see 22700 α -D-Glucose, page 50, 321, 345

■ Diacetyldichlorofluorescein

see 19353 2',7'-Dichlorofluorescein diacetate, page 36, 345

■ Diacetylfluorescein

see 21575 Fluorescein diacetate, page 45, 345, 371

4',6'-Diamidino-2-phenylindole-2HCl analytical grade

(DAPI)

 $C_{16}H_{15}N_5 \cdot 2HCl$ $\diamond$ M_r 350.25 $\diamond$ CAS [28718-90-3]EINECS 249-186-7 $\diamond$ WGK 1 $\diamond$ HS 29339980

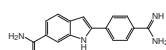
Storage temperature +2 °C to +8 °C

Fluorescent dye binding selectively to DNA. For demonstration of mycoplasmas and virus in cells (1). For fluorescent chromosome staining (2). Dye for brain stem (3).

Purity min. 98.0 %

References:

1. Russel, W.C. et al. (1975) Nature **253**, 461-2
2. Schweizer, D. (1976) Chromosoma (B.) **58**, 307-24
3. van der Kooy, D. & Kuypers, H.G.J.M. (1979) Science **204**, 873-5



Cat.No.	Size	EUR
18860.01	10 mg	42,00
18860.02	25 mg	81,00

3,3'-Diaminobenzidine-4HCl·xH₂O research grade

(DAB)

 $C_{12}H_{14}N_4 \cdot 4HCl \cdot xH_2O$ $\diamond$ M_r 360.1 (anhydr.) $\diamond$ CAS [868272-85-9]

WARNING

H302-H332-H351 $\diamond$ Carc. 2 $\diamond$ EINECS 231-018-9 $\diamond$ WGK 3 $\diamond$ HS 29215990

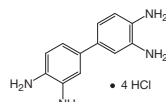
Storage temperature +2 °C to +8 °C

Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (titr.) min. 96.0 %

References:

1. Hanker, J.S. et al. (1972) Histochemie **30**, 201-14
2. Graham, R.C. & Karnovsky, M.J. (1966) J. Histochem. Cytochem. **14**, 291-302



Cat.No.	Size	EUR
18865.01	100 mg	12,00
18865.02	1 g	22,00

Diazoresorcinol

see 34226 Resazurin-Na-salt, page 88, 323, 373

4,5,4',5'-Dibenzo-3,3'-diethyl-9-methylthiacarbo-cyanine-bromide

(Stains-all; 1-Ethyl-2-thiazoline-2[3-(1-ethylnaphthol [1,2]-thiazoline-2-ylidene)-2-methylpropenyl]naphthol [1,2-d] thiazolium bromide)

 $C_{30}H_{27}N_2S_2 \cdot Br$ $\diamond$ M_r 559.6 $\diamond$ CAS [7423-31-6]EINECS 231-047-7 $\diamond$ WGK 1 $\diamond$ HS 29420000

Storage temperature +2 °C to +8 °C

Universal dye.

 λ max. 572 nm $\pm$ 4

A 1 cm/0.0001 %

in methanol at λ max.

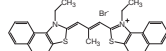
ca. 0.2

 ϵ max./methanol

ca. 112 000

References:

1. Kutsch, H. & Schleich, C. (1989) Fresenius Z. Anal. Chem. 333,



Cat.No.	Size	EUR
19284.01	100 mg	29,00

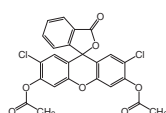
2',7'-Dichlorofluorescein diacetate analytical grade

(Diacetyldichlorofluorescein)

 $C_{24}H_{16}Cl_2O_7$ $\diamond$ M_r 487.3 $\diamond$ CAS [4091-99-0]WGK 1 $\diamond$ HS 29329900

Storage temperature -15 °C to -25 °C

MP 205 - 210 °C



Cat.No.	Size	EUR
19353.03	100 mg	75,00

2,6-Dichlorophenolindophenol-Na-salt analytical grade

(Tillman's reagent; Phenolindo-2,6-dichlorophenol; DPIP)

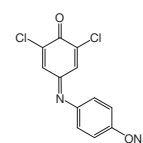
 $C_{12}H_6Cl_2NO_2 \cdot Na$ $\diamond$ M_r 290.1 $\diamond$ CAS [620-45-1]EINECS 210-640-4 $\diamond$ WGK 1 $\diamond$ HS 29252900

For vitamin C determination.

 λ max. 0.001 % in water 604 $\pm$ 4 nm

References:

1. Hlromi, K. et al. (1980) Anal. Biochem. **101**, 421-6



Cat.No.	Size	EUR
19354.01	5 g	29,00

Diethyl pyrocarbonate research grade

(DEPC; Ethoxy formic anhydride; Pyrocarbonic acid diethyl ester)

 $C_8H_{10}O_5$ $\diamond$ M_r 162.14 $\diamond$ CAS [1609-47-8]

WARNING

H302-H315-H319-H332-H335 $\diamond$ EINECS 216-542-8 $\diamond$ WGK 1 $\diamond$ HS 29209085

Storage temperature +2 °C to +8 °C

Crosslinks proteins, reacts with histidine residues (1). RNase inhibitor (2). Sterilization of instruments: 20-minute treatment with a dilution of 1 ml/l (3). Removal of RNases from solutions (except those containing amines like Tris): Add DEPC to final conc. of 0.1 %, stir overnight and autoclave.

Assay (GC) min. 96.0 %

References:

1. Tsurushin, S. et al. (1975) Biochim. Biophys. Acta **410**, 451-60
2. Berger, S.L. (1975) Anal. Biochem. **67**, 428-37
3. Paull, O. & Genth, H. (1966) Z. Lebensm.-Unters.-Forsch. **132**, 216-27

Cat.No.	Size	EUR
18835.01	10 ml	35,00
18835.02	100 ml	230,00

Digitonin analytical grade

(Digitin)

 $C_{56}H_{92}O_{29}$ $\diamond$ M_r 1229.34 $\diamond$ CAS [11024-24-1]

DANGER

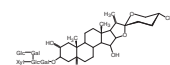
H301-H311-H331 $\diamond$ GGVSE/ADR 6.1 II UN2811 $\diamond$ IATA 6.1 II UN2811 $\diamond$ EINECS 234-255-6 $\diamond$ WGK 3L $\diamond$ HS 29389010

USP. Naturally occurring surfactant especially useful for receptor solubilization. Frequently applied as hemolysis reagent and for permeabilization of certain types of cells e.g. blood platelets, hepatocytes, yeast or tumor cells. Also used for the estimation of cholesterol.

References:

1. Scallan, D.J. & Dietert, S.E. (1969) J. Cell Biol. **40**, 802-13
2. Grigoriadis, D.E. et al. (1989) Endocrinology **125**, 3068-77
3. Hermann, P. et al. (1988) Photosynthetica **22**, 411-22
4. Boschmann, M. et al. (1989) Biomed. Biochim. Acta **48**, 645-52
5. Mooney, R.A. (1988) in Meth. Enzymol. **159**, (Corbin, J.D. & Johnson, R.A., Eds.) 193-202, Academic Press, Inc.

Cat.No.	Size	EUR
19550.01	500 mg	97,00
19550.02	1 g	170,00



Digitonin water soluble research grade

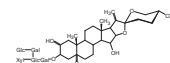
 $C_{56}H_{92}O_{29}$ $\diamond$ M_r 1229.34 $\diamond$ CAS [11024-24-1]

DANGER

H301-H311-H331 $\diamond$ GGVSE/ADR 6.1 II UN2811 $\diamond$ EINECS 234-255-6 $\diamond$ WGK 3L $\diamond$ HS 29389010

Turbidity: 1 g is suspended in 20 ml water and dissolved by heating to 95 - 98 °C for 15 minutes.

Cat.No.	Size	EUR
19551.01	250 mg	89,00
19551.02	1 g	289,00



2,2-Dihydroxy-1,3-indanedione

see 30410 Ninhydrin, page 73

4,6-Dihydroxy-2-thiopyrimidine

see 36108 2-Thiobarbituric acid, page 112

Diisopropylfluorophosphate pure

(DFP; Diisopropyl phosphorofluoridate)

$C_6H_{14}FPO_3$ ♦ M_r 184.15 ♦ CAS [55-91-4]



DANGER

H300-H310-H314-H330 ♦ GGVSE/ADR 6.1 I UN2927
♦ IATA 6.1 I UN2927 ♦ EINECS 200-247-6 ♦ WGK 2 ♦

HS 29199000

Storage temperature +2 °C to +8 °C

Acetylcholinesterase inhibitor. Highly toxic; do not inhale vapors and avoid skin contact. Protect from moisture.

Assay (GC) ca. 97.0 %

References:

1. Wilson, B.W. & Walker, C.R. (1974) Proc. Natl. Acad. Sci. USA **71**, 3194-8

Cat.No.	Size	EUR
77205.01	1 g	255,00

threo-1,4-Dimercapto-2,3-butanediol

see 20710 Dithiothreitol, page 39, 147

3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium · bromide research grade

(MTT; Thiazolyl blue)

$C_{18}H_{16}BrN_5S$ ♦ M_r 414.33 ♦ CAS [298-93-1]

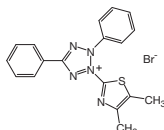
EINECS 206-069-5 ♦ WGK 2L ♦ HS 29341000

Detection of dehydrogenases in combination with phenazine methosulfate (1). Terminal electron acceptor in the cycling assay for pyridine nucleotides (2). For colorimetric assay to measure cell activation (3, 4).

Assay (titr.) min. 98.0 %

References:

- Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
- Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
- Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
- Hansen, M.B. et al. (1989) J. Immunol. Methods **119**, 203-10



Cat.No.	Size	EUR
20395.01	250 mg	12,00
20395.02	1 g	25,00
20395.03	5 g	95,00
20395.04	25 g	390,00

N,N-Dimethyl-N-dodecyl-N-(3-sulfopropyl)ammonium betaine

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

Dimethyl sulfoxide molecular biology grade

(DMSO)

C_2H_6OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160 mg/m³ ♦ EINECS 200-664-3 ♦ WGK 1 ♦ HS 29309099

DNase/RNase not detected.

Assay min. 99.0 %
MP 18.0 °C
d20 °C 1.1
Water (KF) max. 0.3 %

Cat.No.	Size	EUR
39757.01	50 ml	18,00
39757.02	250 ml	25,00

Dimethyl sulfoxide research grade

(DMSO)

C_2H_6OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160mg/m³ ♦ EINECS 200-664-3 ♦ WGK 1L ♦ HS 29309099

Highly active solvent and pharmaceutical vehicle; for freezing cells. For gradient centrifugation (1). Determination of cysteine and cystine in proteins (2).

Assay min. 99.0 %
MP min. 18.0 °C
d20 °C 1.1
Water (KF) max. 0.3 %

References:

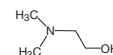
- Kelly, R.B. & Sinheimer, R.L. (1967) J. Mol. Biol. **29**, 229-36
- Spencer, R.L. & Wold, F. (1969) Anal. Biochem. **32**, 185-90

Cat.No.	Size	EUR
20385.01	250 ml	15,00
20385.02	1 L	29,00

Dimethylaminoethanol research grade

(N,N-DMAE; S-1; Dimethylethanolamine)

$C_4H_{11}NO$ ♦ M_r 89.1 ♦ CAS [108-01-0]



DANGER

H226-H302-H312-H314-H332 ♦ EG-Index 603-047-00-0 ♦ GGVSE/ADR 8 II UN2051 ♦ IATA 8 II UN2051 ♦ EINECS 203-542-8 ♦ WGK 1L ♦ HS 29221985

Slightly yellow catalyst of very low viscosity, „accelerator“ for epoxy-polyester condensation (1). Inhibits ethanolamine phosphokinase (2). Also used for electron microscopy.

Assay (GC) min. 99.0 %

References:

- Spurr, A. (1969) J. Ultrastruct. Res. **26**, 31-43
- Weinhold, P.A. & Rethy, V.B. (1972) Biochim. Biophys. Acta **276**, 143-54

Cat.No.	Size	EUR
20130.04	5 ml	11,50
20130.02	100 ml	20,00

N, N-Dimethylbenzylamine

see 14835 Benzyl dimethylamine, page 17, 360

Dimethylformamide molecular biology grade

(DMF; DMFA)

C_3H_7NO ♦ M_r 73.10 ♦ CAS [68-12-2]



DANGER

H226-H312-H319-H332-H360D ♦ Repr. 1B ♦ MAK/TRK 10 ml/m³, 30 mg/m³ ♦ EG-Index 616-001-00-X ♦ GGVSE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦ EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected. Suitable as a solvent for chromogenic substrates used in molecular biology applications.

Assay (GC) min. 99.9 %

Cat.No.	Size	EUR
39756.01	250 ml	21,50
39756.02	1 L	56,50

Dimethylformamide research grade

(DMF; DMFA)

C_3H_7NO ♦ M_r 73.1 ♦ CAS [68-12-2]



DANGER

H226-H312-H319-H332-H360D ♦ Repr. 1B ♦ MAK/TRK 10 ml/m³, 30 mg/m³ ♦ EG-Index 616-001-00-X ♦ GGVSE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦ EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

Assay (GC) min. 99.9 %
BP 152 - 154 °C

Cat.No.	Size	EUR
20270.03	250 ml	12,00
20270.04	1 L	27,00

1,9-Dimethylmethylen blue-chloride pure

(([3,7-Bis(dimethylamino)-1,9-dimethyldiphenothiazin-5-ium chloride])
 $C_{18}H_{22}ClN_3S \cdot 0.5 ZnCl_2$ ♦ M_r 416.05 ♦ CAS [931418-92-7]



WARNING

H319 ♦ WGK 2L ♦ HS 32041300

Histological stain with strong metachromic properties (1, 2).
 Particularly suitable for the quantitation and discrimination of sulfated
 glycosamino glycans (proteoglycans) (3, 4).

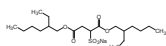
References:

1. Taylor, K.B. & Jeffree, G.B. (1969) *Histochem. J.* **1**, 199-204
2. Toepfer, K. (1970) *Histochemie* **21**, 64-72
3. Farndale, R.W. et al. (1982) *Connect. Tissue Res.* **9**, 247-8
4. Klompmakers, A.A. & Hendriks, T. (1986) *Anal. Biochem.* **153**, 80-4

Cat.No.	Size	EUR
20335.01	1 g	120,00

Diocetyl sulfosuccinate-Na-salt research grade

((Bis-2-ethylhexyl)sodium sulfosuccinate; Aerosol OT)
 $C_{20}H_{37}O_7S_2Na$ ♦ M_r 444.6 ♦ CAS [577-11-7]



DANGER

H302-H315-H318 ♦ EINECS 209-406-4 ♦ WGK 2L ♦
 HS 34029090

Ph.Eur. Detergent; water solubility at 20 °C ca. 1.5 %, at 70 °C ca. 5 %.
 Suitable for reverse micellar solubilization of enzymes, cell organelles and
 bacterial cells.

Assay (titr.) min. 98.0 %

References:

1. Bru, R. et al. (1989) *Biotechnol. Bioeng.* **34**, 304-8
2. Kabanov, A.V. et al. (1989) *Biochim. Biophys. Acta* **996**, 147-52
3. Haering, G. et al. (1987) *Ann. N.Y. Acad. Sci.* **506**, 337-44
4. Hochkoeppler, A. et al. (1989) *Biotechnol. Bioeng.* **33**, 1477-81

Cat.No.	Size	EUR
20540.02	500 g	45,00

Direct Red 28

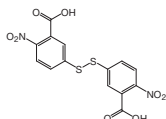
see 27215 Congo Red, page 31, 370

L(-)-3,3'-Dithiobis(2-aminopropanoic acid)

see 17880 L-Cystine, page 33

5,5'-Dithiobis(2-nitrobenzoic acid) research grade

(DTNB; Ellman's reagent)
 $C_{14}H_8N_2O_6S_2$ ♦ M_r 396.36 ♦ CAS [69-78-3]



WARNING

H315-H319-H335 ♦ EINECS 200-714-4 ♦
 WGK 1 ♦ HS 29309099

For qualitative and quantitative determination of sulfhydryl groups.

Asay (titr.) 99.0 - 101.0 %
 Molar extinction coefficient 13 600 - 14 250
 (l mol⁻¹ cm⁻¹)

References:

1. Ellman, G.L. (1959) *Arch. Biochem. Biophys.* **82**, 70-7

Cat.No.	Size	EUR
20735.02	5 g	54,00
20735.03	25 g	250,00

Dithioerythritol

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]



WARNING

H302-H312-H315-H319-H332-H335 ♦ EINECS 229-998-8
 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Quantitatively reduces disulfide groups, forming a cyclic disulfide (1, 2, 3).
 Not hygroscopic.

Assay (titr.) min. 99.0 %
 MP 82 - 86 °C

References:

1. Cleland, W.W. (1964) *Biochemistry* **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) *J. Biol. Chem.* **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) *Biochemistry* **11**, 2939-44

Cat.No.	Size	EUR
20697.02	1 g	16,50
20697.03	5 g	48,00
20697.04	25 g	195,00

Dithioerythritol molecular biology grade

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]



WARNING

H302-H312-H315-H319-H332-H335 ♦ EINECS 229-998-8 ♦
 WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected. Quantitatively reduces disulfide groups, forming
 a cyclic disulfide (1, 2, 3).

Assay (titr.) min. 99.0 %
 MP 82 - 86 °C

A 1 cm/0.02 M in H₂O

283 nm max. 0.04

References:

1. Cleland, W.W. (1964) *Biochemistry* **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) *J. Biol. Chem.* **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) *Biochemistry* **11**, 2939-44

Cat.No.	Size	EUR
39758.01	1 g	30,00
39758.02	5 g	63,00
39758.03	25 g	250,00

Dithiothreitol electrophoresis grade

$C_4H_{10}O_2S_2$ ♦ M_r 154.25 ♦ CAS [3483-12-3]



WARNING

H302-H315-H319-H332-H335 ♦ HS 29309099
 Storage temperature +2 °C to +8 °C



DTT is effective in sample buffers for reducing protein disulfide bonds prior
 to SDS-PAGE (1). Tested for use in reduced SDS-PAGE. Oxidized DTT max.
 0.5 %. Hygroscopic.

Assay (titr.) min. 90.0 %
 MP 40 - 99.0 °C

References:

1. Cleland, W.W. (1964) *Biochemistry* **3**, 480-2

Cat.No.	Size	EUR
20711.01	1 g	21,00
20711.02	5 g	53,00
20711.03	25 g	175,00

Dithiothreitol

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.25



WARNING

H302-H315-H319-H332-H335 ♦ WGK 3L ♦
 HS 29309099

Storage temperature +2 °C to +8 °C

For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %
 MP 40 - 45 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2



Cat.No.	Size	EUR
20710.02	1 g	15,00
20710.03	5 g	45,00
20710.04	25 g	145,00

Dithiothreitol molecular biology grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.25



WARNING

H302-H315-H319-H332-H335 ♦ WGK 1 ♦ HS 29309099
 Storage temperature +2 °C to +8 °C

DNase/RNase not detected. For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %
 MP 40 - 45 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2

Cat.No.	Size	EUR
39759.01	1 g	21,00
39759.02	5 g	53,00
39759.03	25 g	175,00

DMF

see 20270 Dimethylformamide, page 37

DMSO

see 20385 Dimethyl sulfoxide, page 37, 320, 374

DNA Disc Electrophoresis

HS 38220000

Buffer system for native and denaturing DNA electrophoresis in CleanGels. Contains gel rehydration buffer, electrode buffer, electrode wicks, and drying cardboard.

Cat.No.	Size	EUR
43356.01	1 kit	57,00

DNA Fragment Analysis Kit

HS 38220000

Storage temperature -15 °C to -25 °C

Polyacrylamide gel electrophoresis is the optimal separation technique for DNA fragments below 1-kilobase length.

The DNA Fragment Analysis Kit is optimized for SSCP analysis and contains 4 CleanGels 15 % with 52 sample slots, rehydration buffer, electrode buffer, buffer wicks, and cooling contact fluid.

CleanGels are 0.42 mm thin pre-polymerized polyacrylamide gels, washed and dried down on the film-backing. Short before use they are rehydrated in the DNA disc buffer solution using a dedicated tray: the CleanPool (cat. no. HPE-A01.01). The gels are run on a horizontal flatbed equipment like the SERVA BlueHorizon™ chamber or the HPE™ Tower.

Cat.No.	Size	EUR
43353.01	1 kit	187,00

DNA from fish sperm pure

CAS [100403-24-5]

EINECS 309-566-6 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Defatted; this material is largely depolymerized; suitable as source for various mono- and oligonucleotides. May be used as blocking reagent after solubilization, shearing and heat denaturation (3).

References:

1. Zamenhoff, S. (1958) Biochem. Prep. **6**, 6-12
2. Bonner, J. & Huang, R.C.C. (1963) J. Mol. Biol. **6**, 169-74
3. J. Sambrook, E.F. Fritsch, T. Maniatis (1989) Molecular Cloning - A Laboratory Manual, B15

Cat.No.	Size	EUR
18580.01	25 g	41,00
18580.02	100 g	132,00

DNA Loading Buffer

see 42544 SERVA PRIME DNA Sample Buffer (3x), page 95, 249

DNA Molecular Weight Markers

see SERVA DNA Standards, page , 230

DNA Sample Buffer

see 42544 SERVA PRIME DNA Sample Buffer (3x), page 95, 249

DNase I

see 18535 Deoxyribonuclease I from Bovine Pancreas min. 3000 Kunitz units/mg, page 34, 135, 290, 333

2-Dodecenylsuccinic acid anhydride pract.

(DDSA; 2-Dodecenylsuccinic anhydride;
 EPON hardener DDSA)

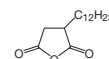


$C_{16}H_{26}O_3$ ♦ M_r 266.38 ♦ CAS [25377-73-5]

WARNING

H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171990

Hardener for epoxy resins.



Cat.No.	Size	EUR
20755.01	100 g	13,00
20755.02	1 kg	49,00

N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate research grade

(Sulfobetaine SB 12; Ralufon DL; N,N-Dimethyl-N-dodecyl-N-(3-sulfopropyl)ammonium betaine)
 $C_{17}H_{37}NO_3S$ ♦ M_r 335.55 ♦ CAS [14933-08-5]

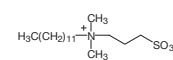
EINECS 239-002-3 ♦ WGK 1 ♦ HS 34021900

Zwitterionic surfactant for solubilizing membrane proteins without denaturation. Applicable over a wide pH-range.

Assay (titr.) min. 98.0 %

References:

1. Gonne, A. & Ernst, R. (1978) Anal. Biochem. **87**, 28-38
2. Dekker, J.P. et al. (1988) Biochim. Biophys. Acta **936**, 307-18
3. Mazhul, L.A. et al. (1988) Mol. Genet. Mikrobiol. Virusol. **12**, 42-7



Cat.No.	Size	EUR
20761.02	10 g	27,00
20761.03	50 g	69,00

Products for
HPE™ 2D-Gelelectrophoresis
 and Proteomics:
 see special chapter at p. 215

Dodecyl-β-D-maltoside research grade

(Lauryl-β-D-maltoside)

 $C_{24}H_{46}O_{11}$ ♦ M_r 510.63 ♦ CAS [69227-93-6]

WGK 1 ♦ HS 34021300

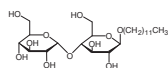
Storage temperature +2 °C to +8 °C

Non-ionic detergent; CMC 0.16-0.19 mM. Especially suitable for the activation of cytochrome C oxidase. Frequently used for the investigation of photosynthetic membranes.

Assay (from C) min. 99.0 %
 $[\alpha]_{20}^{\circ}C/D$ (c=1 in H_2O). +46 ° to +50 °

References:

1. Rosevaer, P. et al. (1980) *Biochemistry* **19**, 4108-15
2. Musatov, A. et al. (1990) *Biochem. Int.* **21**, 563-71
3. Dekker, J.P. et al. (1989) *FEBS Lett.* **254**, 150-4
4. Koenig, B. et al. (1989) *FEBS Lett.* **257**, 163-6



Cat.No.	Size	EUR
20780.01	100 mg	25,00
20780.02	500 mg	40,00
20780.03	1 g	65,00

Dodecylsulfate-Na-salt electrophoresis grade $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ HS 34029090

Ultrapure SDS, suitable for standard and high resolution electrophoresis techniques.

Assay (GC) min. 99.0 %
 A 1cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.05

Cat.No.	Size	EUR
20771.01	100 g	26,00
20771.02	500 g	104,00

Dodecylsulfate-Na-salt cryst., research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Assay (GC) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 1.5
 280 nm max. 1.0
 C_{10} - and C_{14} -sulfate (GC) max. 1 %

Cat.No.	Size	EUR
20760.01	100 g	13,00
20760.03	250 g	19,00
20760.02	1 kg	53,00

Dodecylsulfate-Na-salt for biochemistry

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
20783.01	250 g	35,00
20783.02	1 kg	93,00

Dodecylsulfate-Na-salt 2xcryst., analytical grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Assay (GC) min. 99.0 %
 C_{10} - and C_{14} -sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water
 260 nm max. 0.2
 280 nm max. 0.08

Cat.No.	Size	EUR
20763.01	100 g	25,00
20763.02	500 g	98,00

Dodecylsulfate-Na-salt 2x cryst., molecular biology grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

WARNING

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

DNase/RNase not detected. Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.5 %
 A 1 cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.05

Cat.No.	Size	EUR
39574.01	100 g	37,00
39574.02	500 g	136,00

Dodecylsulfate-Na-salt 2x cryst., premium grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.15
 280 nm max. 0.05

Cat.No.	Size	EUR
20770.01	100 g	30,00
20770.02	500 g	120,00

Dodecylsulfate-Na-salt in Pellets research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

WARNING

H228-H302-H312-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN1325 ♦ IATA 4.1 III UN1325 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Same quality as Cat. No. 20760 but pressed in small pellets thus avoiding the irritant dust of the powder form.

Assay (GC) min 99.0 %
 C_{10} and C_{14} -sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water:
 260 nm max. 1.5
 280 nm max. 1.0

Cat.No.	Size	EUR
20765.01	100 g	13,00
20765.02	250 g	20,00
20765.03	1 kg	56,00

■ DOWEX® Ion Exchangers

see Special Section, page 376

■ Doxorubicin-HCl

see 11010 Adriamycin HCl Solution, page 5, 286

■ DPN

see 30311 β-Nicotinamide adenine dinucleotide, page 72, 342

■ DTE

see 20697 Dithioerythritol, page 38, 147

■ DTNB

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 38

■ DTT

see 20710 Dithiothreitol, page 39, 147

■ E-64 research grade

(trans-Epoxy succinyl-L-Leucylamido-(4-Guanidino)butane; Epoxy[L-3-trans-Carboxy oxiran-2-Carbonyl]-L-Leu-Agmatin)

C₁₅H₂₇N₅O₅ ♦ M_r 357.4 ♦ CAS [66701-25-5]

HS 29241900

Storage temperature -15 °C to -25 °C

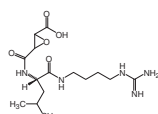
Inhibitor for papain and other cysteine (thiol) proteases. Effects on metastasis formation in mice (5).

Assay (HPLC)

min. 99.0 %

References:

1. Hanada, K. et al. (1978) Agric. Biol. Chem. **42**, 523, 529
2. Varughese, K.J. et al. (1989) Biochemistry **28**, 1330-2
3. Nakao, H. et al. (1989) Int. J. Biochem. **21**, 139-42
4. Jani, J.P. et al. (1992) Oncol. Res. **4**, 59-63
5. Leto, G. et al. (1994) In Vivo **8**, 231-6



Cat.No.	Size	EUR
21100.01	5 mg	72,00
21100.02	25 mg	263,00

■ E-64 d

(EST; L-3-trans-ethoxycarbonyloxirane-2-carbonyl)-L-leucine-(3-methylbutyl)amide; (2S,3S)-trans-epoxysuccinyl-L-leucylamido-3-methylbutane ethyl ester)

C₁₇H₃₀N₂O₅ ♦ M_r 342.4 ♦ CAS [88321-09-9]

HS 29241900

Storage temperature -15 °C to -25 °C

Membrane permeable inhibitor of lysosomal cysteine proteases (Cathepsin B/H/L and Calpain) analog of E-64 c.

Assay (HPLC)

min. 98.0 %

References:

1. Tamai, M. et al. (1986) J. Pharmacobio. Dyn. **9**, 672
2. Tamai, M. et al. (1987) Chem. Pharm. Bull. **35**, 1098
3. McGowan, E.B. et al. (1989) Biochem. Biophys. Res. Commun. **158**, 432
4. Incomata, M. et al. (1996) Arch. Biochem. Biophys. **328**, 129

Cat.No.	Size	EUR
21102.01	1 mg	80,00
21102.02	5 mg	285,00

■ Eastman Instant Adhesive 910

(Cyanoacrylic acid methyl ester)

CAS [137-05-3]



WARNING

H315-H319-H335 ♦ MAK/TRK 2 ml/m³; 9,2 mg/m³ ♦ EG-

Index 607-235-00-3 ♦ EINECS 205-275-2 ♦ WGK 2 ♦ HS 35069100

Storage temperature +2 °C to +8 °C

Cat.No.	Size	EUR
20832.03	20 g	42,00

■ Edamin S

see 48625 Peptone from lactalbumin, page 78, 305

■ EDTA

see 11278 Ethylenediamine tetraacetic acid, page 43, 147, 247, 320

■ EDTA-disodium

see 11280 Ethylenediamine tetraacetic acid-Na₂-salt, page 43, 138, 147, 320, 366

■ EGTA

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 43, 147

■ Egtazic acid

see 11290 Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid, page 43, 147

■ Elastase from human neutrophils min. 10 U/mg lyophil.

(Leukocyte elastase)

EC 3.4.21.37 ♦ M_r 29 500 ♦ CAS [9004-06-2]



DANGER

H315-H319-H335 ♦ EINECS 232-670-7 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Lyophilized from sodium acetate pH ca. 5 containing NaCl. Degrades connective tissue components and plasma proteins. Implicated in the development of lung emphysema, arthritis and inflammatory conditions.

Unit definition: 1 U releases 1 μmole 4-nitroanilide per minute from MeO-Suc-Ala-Ala-Pro-Val-4-nitroanilide at 25 °C, pH 8.0 (1).

References:

1. Castillo, M.J. et al. (1979) Anal. Biochem. **99**, 53-64
2. Barrett, A.J. (1981) Methods Enzymol. Vol. **80**, 581-8

Cat.No.	Size	EUR
20927.01	100 μg	62,00

■ Elastase from porcine pancreas min. 120 U/mg protein suspension

EC 3.4.21.36 ♦ M_r ca. 25 900

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

In 70 % saturated ammonium sulfate. For the degradation of proteins and peptides: hydrolyzes especially bonds adjacent to neutral amino acid residues.

25 mg correspond to approx. 3 - 4 ml; 100 mg correspond to approx. 11 - 15 ml.

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

References:

1. Naughton, M. A. & Sanger, F. (1961) Biochem. J. **78**, 156-63
2. Gertler, A. & Hofmann, T. (1970) Can. J. Biochem. **48**, 384-6

Cat.No.	Size	EUR
20931.01	25 mg	40,00
20931.02	100 mg	118,00

■ Elastase from porcine pancreas min. 200 U/mg lyophil. salt-free

(Pancreatopeptidase E)

EC 3.4.21.36 ♦ M_r ca. 25 900 ♦ CAS [39445-21-1]



DANGER

H315-H319-H335 ♦ EINECS 254-453-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins and peptides. Chromatographically purified (1).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

References:

1. Naughton, M. A. & Sanger, F. (1961) Biochem. J. **78**, 156-63
2. Gertler, A. & Hofmann, T. (1970) Can. J. Biochem. **48**, 384-6

Cat.No.	Size	EUR
20929.01	10 mg	80,00
20929.02	25 mg	189,00

■ Ellman's reagent

see 20735 5,5'-Dithiobis(2-nitrobenzoic acid), page 38

■ Embedding Medium ERL-4221D

(Epoxy cyclohexylmethyl-3,4-epoxycyclohexylcarboxylate; Epoxy embedding medium; Spurr Embedding Medium)
 $C_{14}H_{20}O_4$ ♦ M_r 252 ♦ CAS [2386-87-0]



WARNING

H317 ♦ EINECS 219-207-4 ♦ WGK 1L ♦ HS 39073000

Diepoxide. Cycloaliphatic epoxy resin. Embedding medium for electron microscopy. Less toxic substitute for the classical Spurr embedding medium ERL 4206.

Epoxy equivalent weight	126 - 135
Viscosity (25 °C)	220 - 250 mPa.s
Density (g/ml)	1.159 - 1.174

Cat.No.	Size	EUR
21041.01	100 ml	33,00
21041.02	250 ml	63,00
21041.03	1 L	214,00

■ Endoproteinase Glu-C (V8 proteinase), MS approved from *Staphylococcus aureus* lyophil.

3.4.21.19 ♦ CAS [66676-43-5]

HS 35079090

Storage temperature -15 °C to -25 °C *

Endoproteinase Glu-C (V8) is a serine endoproteinase isolated from *Staphylococcus aureus* V8.

Approved quality for use with in-gel digestion and mass spectrometric analysis.

The specificity of Glu-C is primarily determined by the buffer pH and composition. Using phosphate buffers (pH 7.8), Glu-C will cleave at both glutamyl and aspartyl bonds. Ammonium bicarbonate buffer (pH 7.8) will lead to a preferential cleavage of glutamyl bonds.

The presence of proline residues on the carboxy side of the peptide bond inhibits the cleavage.

Due to its highly specific cleavage of peptides Glu-C is used in proteomics for peptide mapping and protein sequence work.

Cat.No.	Size	EUR
20986.01	2 x 25 µg	89,00

■ Eosin Y-Na-salt research grade

(Acid Red 87; Eosin Yellowish; Tetrabromo-fluorescein)

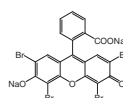
$C_{20}H_6Br_4O_5 \cdot Na_2$ ♦ M_r 691.9 ♦
 CAS [17372-87-1]

HS 29329900

Tested for use as histological stain and as fluorescent indicator (Y = yellowish).

λ_{max} 0.001 % in water 516 ± 4 nm

Cat.No.	Size	EUR
21005.01	25 g	28,00



■ Epon 812

see 21045 Glycid ether 100, page 53, 361

■ EPON accelerator DMP-30

see 36975 2,4,6-Tris(dimethylaminomethyl)phenol, page 114, 361

■ EPON hardener DDSA

see 20755 2-Dodecenylsuccinic acid anhydride, page 39, 360

■ EPON hardener MNA

see 29452 Methylnadac anhydride, page 67, 361

■ Epoxy embedding medium

see 21041 Embedding Medium ERL-4221D, page 42, 360

■ 1,2-Epoxypropane

see 33715 Propylene oxide, page 84, 365

■ ERL-4206 hardener

see 30812 Nonenylsuccinic anhydride, page 73, 361

■ ERL-4206 plasticizer

see 18247 D.E.R.® 736, page 33, 360

■ Erythromycin base research grade

$C_{37}H_{67}NO_{13}$ ♦ M_r 733.92 ♦ CAS [114-07-8]

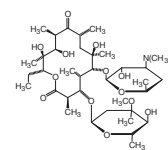
EINECS 204-040-1 ♦ WGK 1 ♦ HS 29415000

Ph. Eur. Mixture of macrolide-glycoside antibiotics produced by a strain of *Streptomyces erythreus*, the main component being Erythromycin A. Broad-spectrum antibiotic. Inhibitor of protein biosynthesis (2,3): inhibits peptide elongation on the ribosome by binding close to the peptidyl transferase center and blocking the peptide exit tunnel in the large ribosomal subunit (4,5).

Assay (HPLC) 93.0 - 102.0 %
 (Sum of Erythromycin A, B, and C)

References:

1. Tanaka, K. et al. (1972) Mol. Genet. **114**, 9-30
2. Jagendorf, A.T. a. Michaels, A. (1990) Plant Science **71**, 137-45
3. Bogorad, L. (2003) Photosynth. Res. **76**, 13-33
4. Lovmar, M. et al. (2004) J. Biol. Chem. **279**, 53506-15
5. Lovmar, M. et al. (2006) J. Biol. Chem. **281**, 6742-50
6. Kohanski, M.A. et al. (2007) Cell **130**, 797-810



Cat.No.	Size	EUR
21208.02	5 g	26,00
21208.03	25 g	78,00

■ Ethanol denaturated 96 %

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
 EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC)	min. 96.0 %
Methyl ethyl ketone	1 %
Aldehyde	max. 30 ppm
Acidity	max. 10 ppm
Methanol	max. 1000 ppm
Residue on evaporation	max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

■ Ethanol undenaturated 96 % analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

Assay (GC)	94.0 - 96.0 %
Water (KF)	4.0 - 6.0 %

Cat.No.	Size	EUR
11094.01	1 L	61,00
11094.02	2,5 L	135,00

■ Ethanol undenaturated absolute analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
 ♦ WGK 1L ♦ HS 22071000

Assay (GC)	min. 99.7 %
Water (KF)	max. 0.2 %

Cat.No.	Size	EUR
11093.01	250 ml	20,00
11093.02	1 L	61,00
11093.03	2,5 L	135,00

See us in the Internet.

Go to www.serva.de!

Ethanol undenatured absolute molecular biology grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5

♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6

♦ WGK 1L ♦ HS 22071000

DNase/RNase not detected. Suitable for use in the precipitation of nucleic acids.

Assay (GC) min. 99.7 %
Water (KF) max. 0.2 %

Cat.No.	Size	EUR
39556.01	250 ml	28,00
39556.02	1 L	69,00
39556.03	2,5 L	145,00

Ethidium bromide research grade

(1,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; 3,8-Diamino-5-ethyl-6-phenyl-phenanthridiniumbromide; Homidium bromide)



$C_{21}H_{20}N_3^+Br^-$ ♦ M_r 394.33 ♦

CAS [1239-45-8]

DANGER

H302-H330-H341 ♦ EG-Index 612-278-00-6 ♦ GGVSE/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦ EINECS 214-984-6 ♦ WGK 2 ♦ HS 29339980

Suitable for use in staining of DNA after electrophoresis. Also used as counterstain for cell nuclei in histological and cytological analysis.

Caution:

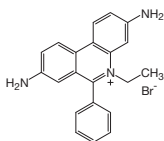
Ethidium bromide is a powerful mutagen and moderately toxic. Gloves should be worn when working with solutions that contain this dye. For decontamination of dilute ethidium bromide containing solutions follow the method from Lunn and Samsone (1). The adsorbent SERDOLIT™ PAD-I for this procedure is available under cat. no. 42442.

Assay (titr.) min. 98.0 %

References:

1. Lunn & Samsone (1987) Ethidium bromide: Destruction and decontamination of solutions. Anal. Biochem. **162**, 453

Cat.No.	Size	EUR
21238.01	1 g	18,00
21238.02	5 g	64,00



Ethidium bromide aqueous solution 1 % w/v



DANGER

H330-H341 ♦ GGVSE/

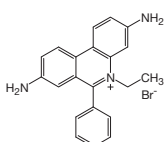
ADR 6.1 III UN2810 ♦

IATA 6.1 III UN2810 ♦ WGK 2 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Concentration: 10 mg/ml. Suitable for use in staining of DNA after electrophoresis or as counterstain of cell nuclei in histology and cytology.

Cat.No.	Size	EUR
21251.01	25 ml	29,00



Ethylene glycol analytical grade

(Ethanediol; Glycol)

$C_2H_6O_2$ ♦ M_r 62.07 ♦ CAS [107-21-1]



WARNING

H302 ♦ MAK/TRK 10 ml/m³; 26 mg/m³ ♦ EG-Index 603-027-00-1 ♦

EINECS 203-473-3 ♦ WGK 1L ♦ HS 29053100

Assay (GC) min. 99.5 %

Cat.No.	Size	EUR
11285.02	1 L	59,00



Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid molecular biology grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)

$C_{14}H_{24}N_2O_{10}$ ♦ M_r 380.35 ♦ CAS [67-42-5]

EINECS 200-651-2 ♦ HS 29225000

DNase/RNase not detected. High selectivity for Ca^{2+} over Mg^{2+} .

Assay (titr.) min. 99.0 %

References:

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7

Cat.No.	Size	EUR
39762.01	5 g	19,00
39762.02	50 g	105,00

Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid analytical grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)

$C_{14}H_{24}N_2O_{10}$ ♦ M_r 380.35 ♦ CAS [67-42-5]

EINECS 200-651-2 ♦ HS 29225000

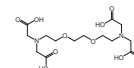
High selectivity for Ca^{2+} over Mg^{2+} .

Assay (titr.) min. 99.0 %

References:

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7

Cat.No.	Size	EUR
11290.01	5 g	21,00
11290.02	50 g	115,00



Ethylenediamine tetraacetic acid analytical grade

(EDTA; Ethylenedinitrilo-tetraacetic acid)

$C_{10}H_{16}N_2O_8$ ♦ M_r 292.3 ♦ CAS [60-00-4]

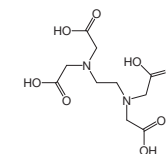
WARNING

H319 ♦ EG-Index 607-429-00-8 ♦

EINECS 200-449-4 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11278.01	100 g	11,50
11278.02	1 kg	40,50



Ethylenediamine tetraacetic acid- Na_2 -salt analytical grade

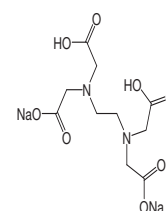
(Versene disodium; EDTA-disodium)

$C_{10}H_{14}N_2O_8 \cdot Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11280.01	100 g	12,50
11280.02	1 kg	42,00
11280.03	5 kg	165,00



Ethylenediamine tetraacetic acid- Na_2 -salt electrophoresis grade

(Versene disodium; EDTA-disodium)

$C_{10}H_{14}N_2O_8 \cdot Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ HS 29212900

EDTA, a cation chelator, is used in DNA electrophoresis buffers to inhibit metal-requiring nucleases. Application tested quality for electrophoresis.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11281.01	100 g	17,50
11281.02	250 g	24,00
11281.03	1 kg	64,00

■ **Ethylenediamine tetraacetic acid- Na_2 -salt**

molecular biology grade

(Versene disodium; EDTA-disodium)

 $\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8 \cdot \text{Na}_2 \cdot 2\text{H}_2\text{O}$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

DNase/RNase not detected.

Assay (titr.)

min. 99.0 %

Cat.No.	Size	EUR
39760.01	250 g	27,00

■ **Ethylenediamine tetraacetic acid- Na_2 -salt solution,**

0.5 M molecular biology grade

WGK 2 ♦ HS 38220000

DNase/RNase not detected. pH (20 °C): 8.0 ± 0.1 , 0.5 M solution. Ready-to-use EDTA disodium salt solution, which can be readily diluted into any buffer of choice. Suitable for electrophoresis buffers, protein purification etc.

Composition:EDTA- $\text{Na}_2 \cdot 2\text{H}_2\text{O}$ (cat.no. 39760) 186.1 g/lpH 8.0 ± 0.1

Cat.No.	Size	EUR
39761.01	100 ml	19,00
39761.02	500 ml	33,00

■ **Ethylenediamine tetraacetic acid- K_3 -salt analytical grade**(EDTA- K_3 -salt; Versene- K_3 -salt) $\text{C}_{10}\text{H}_{13}\text{N}_2\text{O}_8 \cdot \text{K}_3 \cdot 2\text{H}_2\text{O}$ ♦ M_r 442.55 ♦ CAS [65501-24-8]

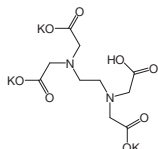
WARNING

H319-H412 ♦ EINECS 241-543-5 ♦ WGK 2L ♦

HS 29212900

Assay (titr.)

min 99.0 %



Cat.No.	Size	EUR
11277.02	100 g	32,50

■ **N-Ethylmaleimide research grade**

(NEM)

 $\text{C}_6\text{H}_7\text{NO}_2$ ♦ M_r 125.13 ♦ CAS [128-53-0]

DANGER

H300-H311-H314-H317 ♦ GGVSE/

ADR 6.1 II UN2928 ♦ IATA 6.1 II UN2928 ♦

EINECS 204-892-4 ♦ WGK 3L ♦ HS 29251995

Storage temperature +2 °C to +8 °C

SH-reagent.

Purity (GC)

min. 98.0 %

MP

43 - 46 °C

**References:**1. Riordan, J. & Vallee, B. (1967) Methods Enzymol. **11**, 541-8

Cat.No.	Size	EUR
11331.02	5 g	40,00
11331.03	25 g	155,00

■ **Ethylmercury thiosalicylic acid- Na -salt research grade**

(Merthiolate; Thimerosal; Thiomersal)

 $\text{C}_9\text{H}_9\text{HgO}_2\text{S} \cdot \text{Na}$ ♦ M_r 404.8 ♦ CAS [54-64-8]

DANGER

H301-H310-H330-H373-H410

♦ MAK/TRK 0.01 ml/m³, 0.1 mg/m³ calculated

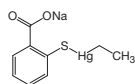
as mercury ♦ EG-Index 080-004-00-7 ♦ GGVSE/ADR 6.1 III UN2025 ♦

IATA 6.1 III UN2025 ♦ EINECS 200-210-4 ♦ WGK 3L ♦ HS 28521000

USP, Ph. Eur.

Assay (titr.)

97.0 - 101.0 %



Cat.No.	Size	EUR
11340.01	10 g	42,00
11340.02	25 g	88,00
11340.03	100 g	252,00

■ **FAD- Na_2** see 21490 Flavin adenine dinucleotide- Na -salt, page 45, 320, 342■ **Fast Green FCF**

(Food Green 3)

 $\text{C}_{37}\text{H}_{34}\text{N}_2\text{O}_{10}\text{S}_3 \cdot \text{Na}_2$ ♦ M_r 808.9 ♦

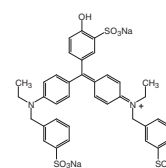
CAS [2353-45-9]



WARNING

H341 ♦ EINECS 219-091-5 ♦ WGK 2L ♦

HS 32041200



Similar to Lissamine Green SF (C.I.42095). Useful for quantitative evaluation of polyacrylamide gel electrophoretic separations (1, 2, 3).

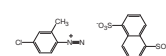
 λ_{max} 0.0005 % in water 624 nm $\pm$ 3**References:**

- Gorovsky, M.A. et al. (1970) Anal. Biochem. **35**, 359-370
- Bartolini, M.B. et al. (1976) Anal. Biochem. **71**, 6-13
- Allen, R.E. et al. (1980) Anal. Biochem. **104**, 494-8

Cat.No.	Size	EUR
21295.01	5 g	22,00
21295.02	25 g	79,00

■ **Fast Red TR-salt**

(Azoic Diazo Component 11; Diazotized 2-amino-5-chlorotoluene-1,5-naphthalene disulfonate; Echtrotsalz TR)

 $\text{C}_{17}\text{H}_6\text{ClN}_2 \cdot \text{C}_{10}\text{H}_7\text{O}_6\text{S}_2$ ♦ M_r 440.9 ♦

CAS [51503-28-7]

DANGER

H302-H315-H319-H335-H350 ♦ EINECS 257-247-4 ♦ WGK 2L ♦

HS 32041600

Coupling with 1-naphthol.

References:1. Gundlach, E. & Mülhausen, B. (1980) J. Clin. Chem. Clin. Biochem. **18**, 603-10

Cat.No.	Size	EUR
21317.01	50 g	288,00

■ **Ferrozine® analytical grade**

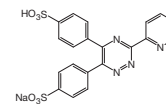
(PDT disulfonate; 3-[2-Pyridyl]-5,6-diphenyl-1,2,4-triazine-4,4'-disulfonic acid Na-salt)

 $\text{C}_{20}\text{H}_{13}\text{N}_4\text{O}_6\text{S}_2 \cdot \text{Na}$ ♦ M_r 492.5 ♦ CAS [69898-45-9]

WARNING

H315-H319-H335 ♦ EINECS 274-196-3 ♦

WGK 1 ♦ HS 29336980



Specific reagent for serum iron determination with high sensitivity. For automated instrumental analysis (1, 2). For determination of acidity of urine and serum (3).

Assay (titr.)

min. 98.0 %

Ferrozine = trademark of Diagnostic Chemicals, Canada.

References:

- Stokey, L.L. (1970) Anal. Chem. **42**, 779-81
- Carter, P. (1971) Anal. Biochem. **40**, 450-58
- Butts, W.C. & Mulvill, H.J. (1975) Clin. Chem. **21**, 1493-7

Cat.No.	Size	EUR
21326.01	1 g	26,00
21326.02	5 g	98,00

■ **Fibroblast growth factor, basic (human) recombinant**

sterile

(bFGF)

HS 29379000

Storage temperature -15 °C to -25 °C

Produced in *E. coli* and purified by affinity chromatography (1).

Reconstitute in PBS (sterile filtered) to a minimum of 0.1 mg/ml.

Concentration required for 0.5 maximum stimulation of bovine aortic endothelial cells (BAE cells): 0.3 ng/ml cell culture of melanocytes (2).

References:

- Gospodarowicz, D. et al. (1986) Cell Differentiation **19**, 1-17
- Halaban, R. et al. (1988) J. Cell Biol. **107**, 1611-9

Cat.No.	Size	EUR
47276.01	10 µg	285,00

■ Fibronectin (human) lyophil. analytical grade, sterile

(HFN)

M_r ca. 450 000 ♦ CAS [86088-83-7]

EINECS 289-149-2 ♦ WGK - ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Enhances cell-cell and cell-substratum adhesion of transformed cells whereby a significant alteration of cellular morphology towards the normal phenotype is observed (1, 2). Lyophilized from a solution of 0.05 M Tris-HCl, 0.1 M NaCl, pH 7.5 after membrane filtration (0.2 microns). Reconstitute with sterile filtered distilled water. Avoid repeated freezing and thawing.

Purity (SDS electrophoresis) > 90.0 %

References:

1. Ali, I.U. et al. (1977) Cell **11**, 115-26
2. Millis, A.J.T. & Hoyle, M. (1978) Nature **271**, 668-9
3. **Review:**
Kleinman, H.K. et al. (1987) Anal. Biochem. **166**, 1-13

Cat.No.	Size	EUR
21370.02	1 mg	128,00

■ FICOLL™ 400

M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

Suited for preparation of continuous and discontinuous density gradients. For stabilization of membrane-bound particles, isolation of lymphocytes. Dialyzable material (including NaCl) max. 1 %. Better osmotic properties than sucrose, it preserves functional and morphological integrity and does not penetrate biological membranes.

FICOLL™ 400 is a neutral, highly branched, hydrophilic polymer of sucrose which dissolves readily in aqueous solution. Concentrations up to 50 % (w/v), covering a density range up to 1.2 g/ml, can be obtained without exceeding normal osmolarity.

FICOLL = trademark of GE Healthcare companies.

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.15, 6.12)

Cat.No.	Size	EUR
21373.01	10 g	32,00
21373.02	50 g	120,00

■ FICOLL™ 400 molecular biology grade

M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

DNase/RNase not detected. Suitable for use in hybridization buffers like Denhardt's Solution (cat. no. 39603).

FICOLL = trademark of GE Healthcare companies.

Cat.No.	Size	EUR
39763.01	10 g	47,00
39763.02	50 g	135,00

■ Flavin adenine dinucleotide-Na-salt pure

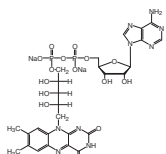
(FAD-Na₂)C₂₇H₃₁N₉O₁₆P₂Na₂·2H₂O ♦ M_r 865.56 ♦

CAS [84366-81-4]

EINECS 282-733-8 ♦ WGK 1 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Assay (photometric, dried subst.) min. 95.0 %
pH 1 % in water 6.2 ± 0.5
Water max. 10.0 %



Cat.No.	Size	EUR
21490.02	100 mg	42,00

■ Float-A-Lyzer® G2

see Spectra/Por® Float-A-Lyzer®, page 176

■ Fluorescamine

see 21551 Fluram®, page 46

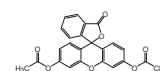
■ Fluorescein diacetate 5xcryst. research grade

(Diacytylfluorescein)

C₂₂H₁₆O₇ ♦ M_r 416.4 ♦ CAS [596-09-8]

EINECS 209-877-6 ♦ WGK 1 ♦ HS 29329900

Storage temperature +2 °C to +8 °C



Special quality for the study of cell membranes (1).
For histochemical esterase detection (2). Measurement of mitochondrial pH-gradients in isolated hepatocytes (3).
Use as fluorescent viability stain (4 - 6).

MP 200 - 205 °C

References:

1. Rotman, B. & Papermaster, B.W. (1963) Proc. Natl. Acad. Sci. USA **50**, 134-41
2. Guibault, G.G. & Kramer, D.N. (1964) Anal. Chem. **36**, 409-12
3. Thomas, P.J. et al. (1991) Arch. Biochem. Biophys. **288**, 250
4. Gray, D.W.R. & Morris, P.J. (1987) Stain Technol. **62**, 373
5. Jamagin, J.L. & Luchsinger, D.W. (1980) Stain Technol. **55**, 253
6. Ross, D.D. et al. (1989) Cancer Res. **49**, 3776

Cat.No.	Size	EUR
21575.02	5 g	59,00

■ Fluorescence labelling

see 43401 SERVA Lightning Red for 1D SDS PAGE, page 95, 239

■ Fluorescence labelling

see 43400 SERVA HPE™ Lightning Red, page 92, 239

■ Fluorescence staining

see 35092 SERVA ProteinStain Fluo-Y, page 96, 240

■ Fluorescence staining

see 43386 SERVA Purple, page 96, 240

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 25 cm x 3 m

HS 39219090

Fluorobind Membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size	EUR
42571.01	1 roll	344,00

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 20 cm x 20 cm

HS 39219090

Fluorobind Membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size	EUR
42572.01	10 sheets	195,00

■ Fluoromount for microscopy



WARNING

H226-H315-H319-H335-H411 ♦ GGVSE/ADR 3 III UN1866 ♦ IATA 3 III UN1866 ♦ WGK 2 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy, based on polyacrylate in xylene.

Refractive index (20 °C) 1.454 - 1.457

References:

1. Gurr, E. (1951) J.R. Nav. Med. Serv. **37**, 133-40
2. De Jong, J.H. (1978) Stain Technol. **53**, 169-72

Cat.No.	Size	EUR
21644.01	50 ml	40,00

■ Fluoromount W for microscopy, aqueous solution

WGK 2S ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy. Ideal for F.I.T.C.

Cat.No.	Size	EUR
21634.01	50 ml	99,00

■ **Fluram®** analytical grade

(Fluorescamine)

 $C_{17}H_{10}O_4$ ♦ M_r 278.26 ♦ CAS [38183-12-9]

EINECS 253-814-5 ♦ HS 29329900

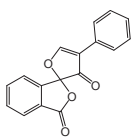
For fluorimetric determination of primary amines and amino acids (1). Spray reagent for TLC (2). Differential labeling of normal and transformed cells (3).

MP 155 - 158 °C

Fluram = TM of Hoffmann La Roche Inc.

References:

1. Udenfriend, S. et al. (1972) Science **178**, 871-2
2. Felix, A. & Jimenez, M.H. (1974) J. Chromatogr. **89**, 361-4
3. Parry, G. et al. (1982) Cytometry **3**, 97-103



Cat.No.	Size	EUR
21551.01	100 mg	30,00
21551.02	500 mg	100,00

■ **FocusGel 3-10** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10.

Cat.No.	Size	EUR
43327.01	5 gels	349,00

■ **FocusGel 3-10 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10, 24 slots for 25 µl.

Cat.No.	Size	EUR
43335.01	5 gels	349,00

■ **FocusGel 3-7** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-7.

Cat.No.	Size	EUR
43328.01	5 gels	349,00

■ **FocusGel 3-7 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use gels for IEF, pH 3-7, 24 slots for 5 µl.

Cat.No.	Size	EUR
43387.01	5 gels	inquire

■ **FocusGel 4-5 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-5, 24 slots for 25 µl.

Cat.No.	Size	EUR
43332.01	5 gels	inquire

■ **FocusGel 4-6 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-6, 24 slots for 25 µl.

Cat.No.	Size	EUR
43334.01	5 gels	inquire

■ **FocusGel 6-11 24S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 24 slots for 25 µl.

Cat.No.	Size	EUR
43329.01	5 gels	349,00

■ **FocusGel 6-11 40S** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 40 slots for 12 µl.

Cat.No.	Size	EUR
43333.01	5 gels	349,00

■ **FocusGel 6-9 24S HEM** Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-9, 24 slots for 25 µl.

Cat.No.	Size	EUR
43330.01	5 gels	inquire

■ **Folic acid** cryst. research grade

(Pteroylmonoglutamic acid; Folsäure)

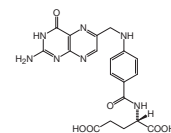
 $C_{19}H_{19}N_7O_6$ ♦ M_r 441.4 ♦ CAS [59-30-3]

EINECS 200-419-0 ♦ WGK 1L ♦ HS 29362900

Ph. Eur.

Assay (HPLC)

96.0 - 102.0 %



Cat.No.	Size	EUR
21700.02	25 g	23,00
21700.03	100 g	71,00

■ **Food Green 3**

see 21295 Fast Green FCF, page 44, 241, 371

■ **Forskolin** research grade

(β-Acetoxy-8,13-epoxy-1α, 6β, 9α-trihydroxyabdo-14-en-11-one)

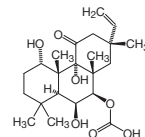
 $C_{22}H_{34}O_7$ ♦ M_r 410.5 ♦ CAS [66575-29-9]

EINECS 266-410-9 ♦ WGK 1 ♦ HS 29145000

Colorless needles. Easily soluble in polar solvents. Diterpene from *Coleus forskohlii*, with cardiovascular effect (dose-dependent) in animals (hyper/hypotensive, pos. inotrope, vasodilator). Activates adenylate cyclase (2, 3)

Assay (HPLC, TLC)

min. 97.0 %



References:

1. Seamon, K.B. & Daly, J.W. (1983) Trends Pharmacol. Sci. **4**, 120-3
2. Huang, R. et al. (1982) J. Cyclic Nucleotide Research **8**, 385
3. Laurenza, A. et al. (1989) Trends Pharmacol. Sci. **10**, 442-7

Cat.No.	Size	EUR
21780.01	1 mg	25,00
21780.02	5 mg	75,00

■ **D-Fructose** research grade

(Levulose)

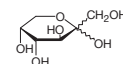
 $C_6H_{12}O_6$ ♦ M_r 180.2 ♦ CAS [57-48-7]

EINECS 200-333-3 ♦ WGK 1 ♦ HS 17025000

Ph. Eur.

[α] 20 °C/D (c=10 in water)

-93.5 to -91.0 °C



Cat.No.	Size	EUR
21830.01	250 g	20,00
21830.02	1 kg	45,00

■ **D-Fructose-1,6-biphosphate- Na_3 -salt** research grade

(Harden-Young-ester)

 $C_6H_{11}O_{12}P_2Na_3 \cdot 8H_2O$ ♦ M_r 550.19 ♦ CAS [81028-91-3]

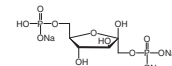
EINECS 253-778-0 ♦ WGK 1 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

Free of monophosphate. Suitable as substrate for Aldolase.

Assay (titr.)

min. 98.0 %



Cat.No.	Size	EUR
21860.01	1 g	32,00

■ **Fuchsin acid** pure

(Acid Violet 19; Rubin S; Fuchsin trisulfonate)

C.I. 42685 ♦ $C_{20}H_{17}N_3Na_3O_9S_3$ ♦ M_r 585.5 ♦

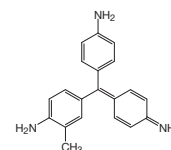
CAS [3244-88-0]

WGK 2L ♦ HS 32041200

Indicator pH 12-14.

λmax. 0.001 % in H_2O

546 ± 4 nm



Cat.No.	Size	EUR
34597.01	25 g	38,00
34597.02	100 g	114,00

Fuchsin basic pure

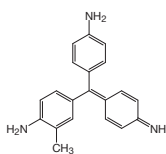
(Basic Violet 14)
C.I.42510 ♦ CAS [632-99-5]



DANGER
H350 ♦ Carc. 1B ♦ EINECS 211-189-6 ♦
HS 32041300

Mixture of homologues of parafuchsin.

$\lambda_{\max}$. 0.0001 % in 50 % ethanol 552 ± 4 nm



Cat.No.	Size	EUR
21916.02	25 g	22,00
21916.03	100 g	52,00

Fungicidin

see 29870 Nystatin min. 4 400 units/mg, page 74, 282

Fungizone®

see 47982 Amphotericin B solution, page 13, 281

6-Furfurylaminopurine

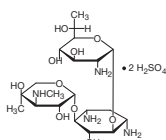
see 27190 Kinetin, page 61, 310

G 418 sulfate

(Geneticin®)
 $C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$ ♦ M_r 692.7 ♦ CAS [108321-42-2]



WARNING
H302-H332-H361d ♦ WGK 3 ♦
HS 29419000



Aminoglycoside antibiotic from *Micromonospora rhodorangea*. Used for the selection and maintenance of eukaryotic cells expressing the neomycin resistance gene (neo). G418 blocks polypeptide synthesis by inhibiting the elongation step. It is similar in structure to gentamycin B1 but active against both bacteria and eukaryotes.

Potency min. 650 µg/mg

Geneticin = trademark of LTI.

References:

1. Southern, P.J. & Berg, P. (1982) J. Mol. Appl. Genetics **1**, 327-41
2. Bar-Nun, S. et al. (1983) Biochim. Biophys. Acta. **741**, 123-7
3. Hadfield, C. et al. (1990) Curr. Genet. **18**, 303-13
4. Wang, X. et al. (1996) Biotechnol. Bioeng. **49**, 45-51
5. Kunik, T. et al. (2001) PNAS **98**, 1871-6
6. D'Artagnan Villalba, J. et al. (2007) Microbiology **153**, 3852-63
7. Gietz, R.D. a. Schiestl, R.H. (2007) Nature Protocols **2**, 31-4

Cat.No.	Size	EUR
49418.02	250 mg	25,00
49418.03	1 g	55,00
49418.04	10 g	450,00

G 418 solution sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

Formulated to contain 50 mg/ml G 418 base in deionized water.

50 mg G 418 base are approx. 70 mg G 418 sulfate (based on dry weight).

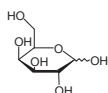
Cat.No.	Size	EUR
47995.01	20 ml	65,00
47995.02	100 ml	240,00

D-Galactose research grade

$C_6H_{12}O_6$ ♦ M_r 180.16 ♦ CAS [59-23-4]

EINECS 200-416-4 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC) min. 98.0 %
MP 165 - 172 °C
[α] 20 °C/D (c=10 in water) + 78 ° to + 81.5 °



Cat.No.	Size	EUR
22020.01	100 g	21,00
22020.02	500 g	72,50

GE 100

see 21045 Glycid ether 100, page 53, 361

GEL-FIX™ for PAG Size: 245 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

GEL-FIX = registered trademark of SERVA

Cat.No.	Size	EUR
42980.01	36 sheets	98,00

GEL-FIX™ for PAG Size: 260 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42999.01	36 sheets	109,00

GEL-FIX™ for PAG Size: 260 mm x 203 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42961.01	36 sheets	120,00

GEL-FIX™ for PAG Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42993.01	36 sheets	108,00

GEL-FIX™ for PAG Size: 265 mm x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42983.01	36 sheets	117,00

GEL-FIX™ for PAG Size: 50 m x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42966.01	1 roll	352,00

GEL-FIX™ for PAG Size: 50 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42968.01	1 roll	395,00

GEL-FIX™ for PAG Size: 200 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42996.01	1 roll	1.105,00

GEL-FIX™ for Agarose Size: 80 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

GEL-FIX™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42998.01	36 sheets	44,00

■ **GEL-FIX™ for Agarose** Size: 125 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42997.01	36 sheets	47,00

■ **GEL-FIX™ for Agarose** Size: 258 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42982.01	36 sheets	99,00

■ **GEL-FIX™ for Agarose** Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42981.01	36 sheets	103,00

■ **GEL-FIX™ for Agarose** Size: 265 mm x 150 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42955.01	36 sheets	110,00

■ **GEL-FIX™ Covers** Size: 245 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

GEL-FIX™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42957.01	36 sheets	43,00

■ **GEL-FIX™ Covers** Size: 260 mm x 203 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42971.01	36 sheets	66,00

■ **GEL-FIX™ Covers** Size: 265 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42970.01	36 sheets	51,50

■ **GEL-FIX™ Covers** Size: 265 mm x 193 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42969.01	36 sheets	51,50

■ **GEL-FIX™ Covers** Size: 280 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42995.01	36 sheets	51,50

■ **2D Gel DALTsix NF 12.5 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43313.01	1 kit	435,00

■ **2D Gel DALTsix NF 10 -15 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43314.01	1 kit	inquire

■ **2D Gel DALTsix 12.5 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43317.01	1 kit	420,00

■ **2D Gel DALTsix 10 -15 % Kit**

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43318.01	1 kit	inquire

■ **2D Gel DALTwelve NF 12.5% Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43315.01	1 kit	inquire

■ **2D Gel DALTwelve NF 10 -15 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support

Cat.No.	Size	EUR
43316.01	1 kit	inquire

■ **2D Gel DALTwelve 12.5 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43319.01	1 kit	759,00

■ **2D Gel DALTwelve 10 -15 % Kit**

HS 38220000

12 gels + buffer kit for ETTAN DALTwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43320.01	1 kit	inquire

■ **Gelatin**

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Ph. Eur. Special quality for bacteriology. A 5 % solution liquefies at 25 - 30 °C and begins to set at 19 - 25 °C.

Cat.No.	Size	EUR
22151.02	500 g	34,00

■ Gelatin capsules No. 0 for electron microscopy

HS 35030010

Volume 0.7 cm³
Length 21.8 mm
Diameter 7.7 mm

Cat.No.	Size	EUR
43520.02	500 pieces	55,00

■ Gelatin, liquid

M_r ca. 60 000 ♦ CAS [9000-70-8]

HS 35030080

From fish skin. Solids content 44.0 - 46.0 %. Contains methyl-/propyl-PHB as preservative. Specially prepared and purified gelatin. Supplied as a pourable liquid. Completely water soluble, even at room temperature and at high concentrations. Acts as a protective colloid.

Cat.No.	Size	EUR
22156.01	100 ml	50,00
22156.02	500 ml	225,00

■ Geldanamycin

C₂₉H₄₀N₂O₉ ♦ M_r 560.64 ♦ CAS [30562-34-6]

HS 29419000

Storage temperature -15 °C to -25 °C

Potent antitumor antibiotic isolated from *Streptomyces hygroscopicus* var. *Geldanus* with macrolide structure (Benzochinone Ansamycin). Inhibitor of proto-oncogenic protein kinases. A potent inhibitor of the nuclear hormone receptor family. Binds to and inhibits heat shock protein 90 (Hsp90) which is essential for the conformation, stability, and function of many target proteins involved in cell signaling, cell proliferation, gene expression, apoptosis, angiogenesis, and oncogenesis.

Purity (HPLC, TLC) min. 98.0 %

References:

- Ochel, H.-J. et al. (2001) Cell Stress Chaperones **6**, 105-12
- Miyata, Y. (2005) Curr. Pharm. Des. **11**, 1131-8
- Xiao Ming Yu et al. (2005) J. Am. Chem. Soc. **127**, 12778-9
- Sharp, S. a. Workman, P. (2006) Adv. Cancer Res. **95**, 323-48
- Hosoi, T. et al. (2007) Cell Research **17**, 184-6.

Cat.No.	Size	EUR
22165.02	1 mg	52,00
22165.03	5 mg	130,00

■ Gelfiltration Columns

see Chapter Sample Preparation, page 152

■ Gelrite®

(Agar Substitute; K9A-40; Gellan-Gum)
CAS [71010-52-1]

EINECS 275-117-5 ♦ WGK 1 ♦ HS 39131000

Polysaccharide produced by bacteria. Useful alternative to agar for the *in vitro* culture of many plants. Yields very clear gels. Constant quality from lot to lot.

Gelrite = registered trademark of Merck & Co., Inc. USA

References:

- Shungu, D. et al. (1983) Appl. Environm. Microbiol. **46**, 840-5
- Sanderson, G. & Clark, R. (1983) Food Technology **37**, 63-70

Cat.No.	Size	EUR
22168.01	250 g	95,00
22168.02	1 kg	350,00

■ Geneticin®

see 49418 G 418, page 47, 284

■ Gentamycin solution sterile filtered



DANGER

H317-H334-H361D ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Formulated to contain 50 mg/ml gentamycin base in deionized water. 50 mg gentamycin base correspond to approx. 50 000 units of gentamycin and are approx. 80 mg gentamycin sulfate.

Cat.No.	Size	EUR
47991.01	20 ml	70,00
47991.02	100 ml	245,00

■ Gentamycin sulfate research grade

(Gentamycin sulfate)

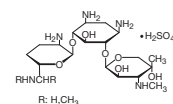
CAS [1405-41-0]



DANGER

H317-H334-H361 ♦ EINECS 215-778-9 ♦

WGK 1 ♦ HS 29419000



Ph. Eur. Min. 590 U/mg. Aminoglycoside antibiotic complex from *Micromonospora purpurea*.

Consists of closely related compounds: gentamycin C₁, C_{1a}, C₂, C_{2a} and C_{2b}; min. 590 mg gentamycin base/g. Inhibits bacterial protein synthesis by binding to the ribosomal 30S subunit and causing misreading of mRNA (in a similar way as streptomycin). Broad spectrum antibiotic which inhibits growth of many Gram-positive and Gram-negative bacteria including strains which are resistant to chloramphenicol, kanamycin or tetracycline. Frequently used in cell culture, often in combination with amphotericin B, nystatin or penicillin G (1,3).

References:

- Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
- Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotics chemistry Vol. I. Chichester: Horwood, pp. 1-90
- Eichholtz, D.A. et al. (1979) Plant Physiol. **63**, Abstr. 753
- Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
- Nakamura, T. et al. (1991) J. Biol. Chem. **266**, 19432-7
- Stubbs, A.C. et al. (2001) Nature Medicine **7**, 625-9
- Manevich, Y. et al. (2002) PNAS **99**, 11599-604
- Richard, J.P. et al. (2005) J. Biol. Chem. **280**, 15300-6

Cat.No.	Size	EUR
22185.01	1 g	14,00
22185.02	5 g	27,00
22185.03	25 g	98,00

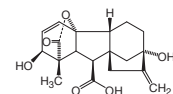
■ Gentian Violet 10B

see 27335 Crystal Violet, page 32, 370

■ Gibberellic acid cryst. pract.

(Gibberellin-A₃)C₁₉H₂₂O₆ ♦ M_r 346.4 ♦ CAS [77-06-5]

HS 29322985

Plant growth factor from *Fusarium moniliformis*.

Assay (HPLC)

min. 90.0 %

Cat.No.	Size	EUR
22278.01	1 g	20,00
22278.02	5 g	68,00
22278.03	25 g	250,00

■ Glass Plates

HS 70031990

Supports for cover. Size: 245 x 128 x 3 mm.

Cat.No.	Size	EUR
42953.01	4 pieces	41,00

■ Glass Plates

HS 70031990

Supports for gel sheets. Size: 265 x 128 x 3 mm.

Cat.No.	Size	EUR
42952.01	4 pieces	37,00

■ Glass wool, silanized research grade



WARNING

H315-H319-H335 ♦ HS 70199099

A very soft material for plugging columns in gas and liquid chromatography.

Cat.No.	Size	EUR
22367.01	10 g	26,00
22367.03	50 g	85,00

■ **γ-Globulin bovine**M_r 150000 ♦ CAS [9007-83-4]

EINECS 232-706-1 ♦ WGK 1 ♦ HS 30021091

Storage temperature +2 °C to +8 °C

Cohn-Fraction II. Highly purified. Soluble in saline and standard buffers. Suitable to reduce non-specific adsorption of antibody in immunoassay systems. Starting material for the isolation of IgG subclasses.

Assay (CAF) 96.0 - 100.0 %
pH (7 % solution) 6.8 - 7.2
Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
22550.01	5 g	65,00
22550.02	25 g	235,00

■ **D-Glucitol**

see 39785 D-Sorbitol, page 107, 301

■ **4-O-β-D-Glucopyranosyl-D-glucose**

see 16400 D-Cellobiose, page 23

■ **α-D-Glucopyranosyl-α-D-glucopyranoside**

see 36770 D-Trehalose, page 113

■ **2-O-β-D-Glucopyranosyl-α-D-glucose**

see 35208 α-Sophorose, page 107

■ **α-D-Glucose anhydrous analytical grade**

(Dextrose; α-D-Glucopyranose)

C₆H₁₂O₆ ♦ M_r 180.16 ♦ CAS [50-99-7]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Assay (titr.) min. 99.5 %
Water (loss on drying) max. 0.5 %



Cat.No.	Size	EUR
22700.01	100 g	9,00
22700.02	1 kg	22,50
22700.03	5 kg	79,00

■ **Glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides* ca. 600 U/mg protein suspension**

(D-Glucose-6-phosphate: NAD(P)⁺ 1-oxidoreductase)EC 1.1.1.49 ♦ M_r ca. 104 000

DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

The enzyme is useful for the determination of D-glucose (1), D-fructose (2) and D-sorbitol (3). In 70 % saturated ammonium sulfate. 10 mg correspond to approx. 1 ml.

Unit definition: See cat. no. 22820, with NAD⁺ as coenzyme.

Extraneous activities: creatine phosphokinase (CPK), 6-phosphogluconate dehydrogenase (6-PGDH), phosphoglucose isomerase (PGI), phosphoglucomutase (PGM) each <0.01 %, hexokinase (HK) <0.05 %.

References:

- Kunst, A. et al. (1984) Methods in Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 6, p.163-72
- Beutler, H.-O. (1984) loc. cit. p. 321-7
- Beutler, H.-O. (1984) loc. cit. p. 356-62

Cat.No.	Size	EUR
22822.01	10 mg	240,00

■ **Glucose-6-phosphate dehydrogenase from yeast ca. 140 U/mg protein suspension**

(G6P-DH)

EC 1.1.1.49 ♦ M_r ca. 102 000 ♦ CAS [9001-40-5]

EINECS 232-602-6 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

In 3.2 M ammonium sulfate; pH 6.0.

1 mg corresponds to approx. 0.2 ml, 10 mg correspond to approx. 2 ml.

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose-6-phosphate per minute at 25 °C, pH 7.8 in the presence of NADP⁺ (equivalent to the reduction of 1 μmol NADP⁺ per minute) (1).

Extraneous activities: 6-PGDH, PGluM each 0.01 %; hexokinase max. 0.02 %; glutathione reductase max. 0.05 %; PGI max. 0.002 %; creatine kinase max. 0.001 %.

References:

- Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. Vol. 2, p. 202-3

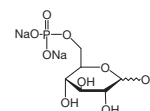
Cat.No.	Size	EUR
22820.01	1 mg	37,00
22820.02	10 mg	263,00

■ **D-Glucose-6-phosphate: NAD(P)⁺ 1-oxidoreductase**see 22822 Glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides* ca. 600 U/mg protein, page 50, 334■ **α-D-Glucose-6-phosphate-Na₂-salt analytical grade**C₆H₁₁O₉P·Na₂ ♦ M_r 304.2 (anhydrous) ♦ CAS [3671-99-6]

EINECS 222-938-1 ♦ WGK 1 ♦ HS 29199000

Storage temperature -15 °C to -25 °C

Assay (enzymat.) min. 98.0 %
Water (K.F.) 8.5 - 12.5 %



Cat.No.	Size	EUR
22799.02	1 g	37,00
22799.03	5 g	135,00

■ **α-D-Glucose monohydrate analytical grade**

(Dextrose)

C₆H₁₂O₆·H₂O ♦ M_r 198.2 ♦ CAS [5996-10-1]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Ph. Eur.

[α] 20 °C/D +52.5° to +53.3°
Water (K.F.) 7.0 - 9.5 %
Heavy metals (Pb) max. 0.5 ppm



Cat.No.	Size	EUR
22720.01	1 kg	16,00
22720.02	10 kg	85,00

■ **Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.**

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (2).

References:

- Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
- Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. Vol. 6, 178-85
- Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) Vol. **IX**, 82-7
- O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-321

Cat.No.	Size	EUR
22739.02	500 mg	69,00

Enzymology:
see special chapter at p. 327

Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.

(GOD)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Glucose oxidase is used in the assay of D-glucose (1). Ca. 300 U/mg protein.

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (1).**Extraneous activities:** Amylase, saccharase and maltase less than 0.05 %; GOD/catalase min. 2000.**References:**

1. Kunst, A. et al. (1984) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 6, p. 178-85
2. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size	EUR
22778.01	100 mg	28,00
22778.02	500 mg	99,00

Glucose oxidase from *Aspergillus niger* min. 200 U/mg lyophil. (Low Catalase)

(GOD; β-D-glucose:oxygen 1-oxidoreductase)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Ca. 350 U/mg protein

Application: Suitable for biosensor applications.**Structure:** A dimeric enzyme consisting of two identical polypeptides of approx. 80 kD which are disulphide-linked.

Each subunit contains 1 mole of FAD. The enzyme is glycosylated, containing approximately 12 % carbohydrate.

Isoelectric point: pH 4.6**pH optimum:** pH 5.5 with broad range 4 - 7**Inhibitors:** p-chloromercuribenzoate, heavy metal ions, hydroxylamine, hydrazine, sodium bisulphite.**Unit definition:** 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine.**Extraneous activities:** Amylase, maltase and invertase less than 0.05 % (2).**Catalase:** less than 0.01 U/mg material**GOD/catalase:** min. 25 000**References:**

1. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. **73**, 199-206
2. Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. vol. 6, 178-85
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size	EUR
22780.01	100 mg	38,00
22780.02	500 mg	155,00

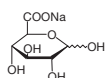
D-Glucuronic acid-Na-salt research grade

(Sodium glucuronate)

C₆H₉O₇·Na·H₂O ♦ M_r 234.1 ♦ CAS [14984-34-0]

EINECS 239-065-7 ♦ WGK 1 ♦ HS 29181998

Assay (titr.) min. 99.0 %



Cat.No.	Size	EUR
22890.02	50 g	120,00

Glutamate dehydrogenase from bovine liver ca. 100 U/mg protein solution

(L-Glutamate: NAD(P)⁺ oxidoreductase (deaminating))EC 1.4.1.3 ♦ M_r ca. 350 000

DANGER

H334 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For the determination of L-glutamate, ammonia and 2-oxoglutaric acid (1, 2). Suitable for urea determination in conjunction with urease (cat. no. 37799). In 50 % glycerol.

25 mg correspond to approx. 1 ml, 100 mg correspond to approx. 4 ml.

Unit definition: 1 U catalyzes the reductive amination of 1 μmole 2-oxoglutarate per minute at 25 °C, pH 7.3 in the presence of ADP.**Activity in other units:** ca. 40 U/mg protein (1 U causes the transformation of 1 μmole 2-oxoglutarate per minute at 25 °C and pH 7.3 under assay conditions not containing ADP).**Extraneous activities:** LDH, MDH each max. 0.01 %; Ammonium ions less than 0.001 μmole per unit.**References:**

1. Schmidt, E. & F.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. Vol. 3, p. 216-27
2. Lund, P. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. 8, p. 357-63

Cat.No.	Size	EUR
22904.01	25 mg	28,00
22904.02	100 mg	83,00

L-Glutamic acid cell culture grade

(L-2-Aminoglutaric acid; Glu)

C₅H₉NO₄ ♦ M_r 147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47205.01	250 g	31,00

L-Glutamic acid research grade

(L-2-Aminoglutaric acid; Glu)

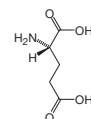
C₅H₉NO₄ ♦ M_r 147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ WGK 1 ♦ HS 29224200

Ph. Eur.

Assay (titr.)	98.5 - 100.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
23000.01	250 g	29,00



L-Glutamine analytical grade

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)

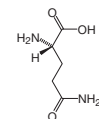
C₅H₁₀N₂O₃ ♦ M_r 146.2 ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ WGK 1L ♦ HS 29224985

USP

Assay (titr.)	99.0 - 101.0 %
Heavy metals (Pb)	max. 5 ppm.

Cat.No.	Size	EUR
22942.02	100 g	22,50
22942.03	250 g	43,00
22942.04	1 kg	150,00



L-Glutamine cell culture grade

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)
 $C_5H_{10}N_2O_3$ ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ HS 29224985

Assay (titr.)	min. 99.0 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.2 %
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 200 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

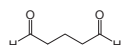
Cat.No.	Size	EUR
47204.01	100 g	25,00
47204.02	250 g	47,00
47204.03	1 kg	165,00

Glutaraldehyde 25 % solution in water

for electron microscopy, standard grade

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13 ♦ CAS [111-30-8]



ANGER
H302-H314-H317-H331-H334-H335-H4
00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦
HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.3720 - 1.3735

Purification index (A235/A280, max. 5.0

1 % in water)

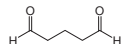
Cat.No.	Size	EUR
23115.01	250 ml	25,00
23115.03	2,5 L	105,00

Glutaraldehyde 25 % solution in water

for electron microscopy, high purity

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13



ANGER
H302-H314-H317-H331-H334-H335-H4
00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦
HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.3712 - 1.3728

Purification index (A235/A280,

1 % in water) max. 0.5

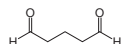
Cat.No.	Size	EUR
23114.01	25 ml	21,00
23114.02	10 x 5 ml	99,00

Glutaraldehyde 50 % solution in water

for electron microscopy

(Glutaric dialdehyde)

$C_5H_8O_2$ ♦ M_r 100.13



ANGER
H301-H314-H317-H331-H334-H335-H4
00 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³ for

glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦
HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.410 - 1.421

Cat.No.	Size	EUR
23116.01	25 ml	39,00
23116.02	10 x 5 ml	110,00

Glutaric dialdehyde

see 23114 Glutaraldehyde 25 % solution in water, page 52, 363

Glutathione Agarose Resin

see 42172 Glutathione Agarose Resin, page 132

L-Glutathione (oxidized form) cryst. research grade

(GSSG)

$C_{20}H_{32}N_2O_{12}S_2$ ♦ M_r 612.64 ♦ CAS [27025-41-8]

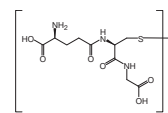
EINECS 248-170-7 ♦ WGK 1 ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 98.0 %
 $[\alpha]_{20}^{20} \text{ °C/D}$ (c=4 in water) -106.0 ° to -96.0 °

References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60



Cat.No.	Size	EUR
23130.01	1 g	22,50
23130.02	5 g	79,00
23130.03	25 g	365,00

L-Glutathione (reduced form) cryst. research grade

(GSH; γ-L-Glutamyl-L-cysteinylglycine)

$C_{10}H_{17}N_3O_6S$ ♦ M_r 307.3 ♦ CAS [70-18-8]

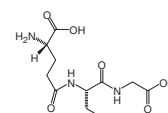
EINECS 200-725-4 ♦ WGK 2L ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (CE) min. 97.5 %
MP 182 - 192 °C
 $[\alpha]_{20}^{20} \text{ °C/D}$ (c=4 in water) -15.5 ° to -17.5 °

References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60



Cat.No.	Size	EUR
23150.02	5 g	20,00
23150.03	25 g	77,00
23150.04	100 g	260,00

Glycerin

see 23176 Glycerol from plant, page 52, 148, 247, 362

Glycerol-albumen pract.

WGK 1 ♦ HS 38220000

Glycerol-egg albumin 1:1. Mounting medium for microscopy; contains
thymol as preservative.

Cat.No.	Size	EUR
20918.03	250 ml	32,00

Glycerol from plant

(Glycerin)

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Ph. Eur.

Assay (titr.) min. 99.5 %
Heavy metals (Pb) max. 5 ppm
Refractive index 1.470 - 1.475



Cat.No.	Size	EUR
23176.01	1 L	33,50

Glycerol from plant 87 %

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

HS 29054500

Refractive index 1.449 - 1.455

Cat.No.	Size	EUR
23177.01	1 L	27,50

Glycerol from plant 87 % molecular biology grade

$C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

HS 29054500

DNase/RNase not detected.

Refractive index 1.449 - 1.455

Cat.No.	Size	EUR
39788.01	1 L	32,00

■ **Glycerol gelatin** for microscopy

DANGER
H314-H341 ♦ WGK 1 ♦ HS 38220000

Cat.No.	Size	EUR
23310.02	100 g	27,00

■ **Glycerol gelatin after Kaiser** phenol-free

HS 38220000

Universal aqueous slide mounting medium for microscopy. The recipe is according to the well-known Kaiser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative. Contains ca. 40 % glycerol and ca. 7 % gelatin.

Refractive index 1.46 – 1.48

Cat.No.	Size	EUR
23311.01	50 ml	18,00

■ **Glycerol gelatin after Kisser** phenol-free

HS 38220000

Aqueous slide mounting medium for microscopy, especially suitable for preparation of pollen. The recipe is according to the well-known Kisser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative.

Contains ca. 40 % glycerol and ca. 13 % gelatin.

Refractive index 1.46 – 1.48

Cat.No.	Size	EUR
23312.01	15 ml	15,00

■ **2-Glycerolphosphate- Na_2 -salt**

(Sodium- β -glycerophosphate)

$\text{C}_3\text{H}_5\text{O}_6\text{P}\cdot\text{Na}_2\cdot 5\text{H}_2\text{O}$ ♦ M_r 306.1 ♦ CAS [13408-09-8]

EINECS 212-464-3 ♦ WGK 1 ♦ HS 29199000

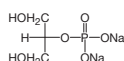
Storage temperature +2 °C to +8 °C

Optically inactive. Substrate for assay phosphatases. Inhibitor of serine and threonine phosphatase.

Assay (titr.) min. 99.0 %

References:

1. Heppel, L.A. (1955) Methods. Enzymol. **2**, 530-3



Cat.No.	Size	EUR
23330.02	100 g	92,00

■ **Glycid ether 100** for electron microscopy

(1,2,3-Propanetriol glycidyl ether; GE 100; Epon 812)

M_r average 306 ♦ CAS [90529-77-4]



WARNING
H315-H319 ♦ EINECS 292-011-4 ♦ WGK 1L ♦ HS 39073000

Mixture of aliphatic di- and triepoxides. Epoxy resin of low viscosity (ca. 100-200 mPa·s at 25 °C) (1). Combination with ARALDITE® (2). With D.E.R.® 736 (3).

Epoxide equivalent 135 - 154 g/mol
Viscosity (25 °C) 100 - 200 mPa·s
Chlorine (total) 10 - 13 %

ARALDITE® = registered trademark of Huntsman Advanced Materials Europe.

D.E.R.® = registered trademark of Dow Chemical Company.

References:

1. Luft, J.H. (1961) J. Biophys. Biochem. Cytol. **9**, 409-14
2. Coulter, H.D. (1967) J. Ultrastruct. Res. **20**, 346-55
3. Kushida, H. (1967) J. Electron Microsc. **16**, 278-80

Cat.No.	Size	EUR
21045.01	100 ml	14,00
21045.02	500 ml	30,00

■ **Glycine** cell culture grade

$\text{C}_2\text{H}_5\text{NO}_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Loss on drying max. 0.2 %
Chloride (Cl) max. 70 ppm
Sulfate (SO_4) max. 65 ppm
Heavy metals (as Pb) max. 10 ppm

Cat.No.	Size	EUR
47206.01	250 g	31,00

■ **Glycine** electrophoresis grade

$\text{C}_2\text{H}_5\text{NO}_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Glycine is a component of Tris-Glycine (cat. no. 42530) and Tris-Glycine-SDS running buffers (cat. no. 42529) for polyacrylamide gel electrophoresis and as well of Towbin buffer for Western Blots (cat. no. 42558).

Tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.) 98.5 – 101.0 %
Heavy metals (Pb) max. 10 ppm
Chloride (Cl) max. 70 ppm

Cat.No.	Size	EUR
23391.01	500 g	27,00
23391.02	1 kg	42,00
23391.03	5 kg	148,50

■ **Glycine** analytical grade

(Aminoacetic acid; Glycocoli)

$\text{C}_2\text{H}_5\text{NO}_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
23390.02	500 g	15,00
23390.04	1 kg	23,00
23390.03	5 kg	89,00

■ **Glycine** premium grade

(Aminoacetic acid; Glycocoli)

$\text{C}_2\text{H}_5\text{NO}_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
23395.01	500 g	25,00
23395.02	1 kg	38,00
23395.03	5 kg	135,00

■ **Glycocoli**

see 23395 Glycine, page 53, 247, 355

■ **Glycogen from oyster** research grade

$(\text{C}_6\text{H}_{10}\text{O}_5)_n$ ♦ CAS [9005-79-2]

EINECS 232-683-8 ♦ WGK - ♦ HS 39139000

Storage temperature +2 °C to +8 °C

Substrate for glycogenphosphorylase (EC 2.4.1.1).

References:

1. Sutherland, E.W. (1955) Methods Enzymol. **1**, 215-22

Cat.No.	Size	EUR
23550.02	5 g	39,00
23550.03	25 g	165,00

■ **Glycogen from oyster, solution 20 mg/ml**

molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C

DNase/RNase not detected. 20 mg/ml solution in redistilled water. Suitable as a carrier molecule for DNA and RNA, replacing tRNA and sonicated DNA.

References:

1. Sambrook, J. & Russell, D.W. (2001) Molecular Cloning, 3rd Edition, Cold Spring Harbor Laboratory Press (p 5.20)

Cat.No.	Size	EUR
39766.01	1 ml	52,00
39766.02	10 x 1 ml	245,00

■ **Glycol**

see 11285 Ethylene glycol, page 43

■ **Grace's Insect powder medium**

HS 38210000

Storage temperature +2 °C to +8 °C

Without sodium bicarbonate, with calcium chloride, with L-glutamine.

Supplements required:

Penicillin G-K-salt 50 U/ml
(cat. no. 31749)*
Streptomycin sulfate 0.1 mg/ml
(cat. no. 35500)

* Original formulation lists Penicillin G-Na-salt

References:

1. Grace, T.D.C. (1962) Nature **195**, 788-9
2. Yunker, C.E. et al. (1967) Science **155**, 1565-6

Cat.No.	Size	EUR
47308.04	10 L	65,00

■ **Gramicidin research grade**

(Gramicidin D)

M_r ca. 2000 ♦ CAS [1405-97-6]

EINECS 215-790-4 ♦ WGK - ♦ HS 29419000

Ph. Eur. Polypeptide antibiotic from *Bacillus brevis* (Dubos). Mixture of several components. Main component: gramicidin A1, others: gramicidins A2, B1, C1 and C2. Antibiotic against grampositive bacteria.
Channel forming antibiotic: 2 molecules of gramicidin form a channel through the cell membrane which is specific for monovalent cations esp. for potassium. Divalent cations and anions cannot pass through this channel.

Potency min. 900 IU/mg
Assay (HPLC) min. 95.0 %
(sum of A1, A2, B1, C1 and C2)

References:

1. Watanabe, Sadao a. Watanabe, Shigenobu (1989) J. Membr. Sci. **44**, 253-63
2. Wallace, B.A. (1990). Annu. Rev. Biophys. Biophys. Chem. **19**, 127-57
3. Andersen, O.S. et al. (2005) Nanobioscience **4**, 10-20
4. Kelkar, D.A. a. Chattopadhyay, A. (2007) Biochim. Biophys. Acta **1768**, 2011-25

Cat.No.	Size	EUR
24150.01	100 mg	29,00

■ **GSH**

see 23150 L-Glutathione (reduced form), page 52, 148, 342

■ **GSSG**

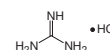
see 23130 L-Glutathione (oxidized form), page 52, 148, 342

■ **GST-Tag Purification**

see Chapter Sample Preparation, page 132

■ **Guanidine-HCl analytical grade**

(Aminomethanamidine)

CH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]**WARNING**

H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

Assay min. 99.5 %
pH (6 M water 20 °C) 4.5 - 6.0
A 1 cm/10 % in water
260 nm max. 0.03
280 nm max. 0.015
Heavy metals (Pb) max. 10 ppm
Arsenic max. 3 ppm
Ammonium max. 0.05 %

References:

1. Strohmair et al. (1977) Cell **10**, 265
2. MacDonald et al. (1987) Methods Enzymol. **152**, 219

Cat.No.	Size	EUR
24200.03	250 g	35,00
24200.04	1 kg	105,00

■ **Guanidine-HCl molecular biology grade**CH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]**WARNING**

H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

DNase/RNase not detected.

Assay min. 99.5 %
A 1 cm/10 % in water
260 nm max. 0.03
280 nm max. 0.015
Heavy metals max. 10 ppm

Cat.No.	Size	EUR
39558.01	100 g	27,00
39558.02	500 g	98,00

■ **Guanidine-HCl research grade**

(Aminomethanamidine)

CH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]**WARNING**

H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

Assay (titr.) min. 99.0 %
pH (6 M in water 20 °C) 4.5 - 6.0
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
24205.01	250 g	26,00
24205.02	1 kg	67,00

■ **Guanidine-thiocyanate molecular biology grade**CH₅N₃·HSCN ♦ M_r 118.2 ♦ CAS [593-84-0]**WARNING**

H302-H312-H332-H412 ♦ EG-Index 615-004-00-03 ♦
EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

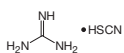
DNase/RNase not detected. Suitable for the isolation of RNA.

Assay > 99.0 %
MP 115 - 122 °C
A 1 cm/3 M in water
280 nm < 0.4
300 nm < 0.05
Heavy Metals (as Pb) < 5 ppm
Iron (Fe) < 5 ppm

Cat.No.	Size	EUR
39577.01	250 g	51,00
39577.02	500 g	89,00

■ **Guanidine-thiocyanate** research grade

(Guanidine rhodanide)

 $\text{CH}_5\text{N}_3\cdot\text{HSCN}$ ♦ M_r 118.2 ♦ CAS [593-84-0]**WARNING**H302-H312-H332-H412 ♦ EG-Index 615-004-00-3 ♦
EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

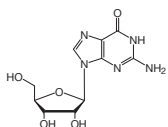
Efficient protein denaturing agent in the isolation of RNA.

Assay (titr.) min. 99.0 %
MP 115 - 122 °C**References:**1. Lizardi, P.M. (1983) Methods Enzymol. **96**, 24-38

Cat.No.	Size	EUR
24220.02	250 g	40,00
24220.03	1 kg	107,00

■ **Guanosine** research grade $\text{C}_{10}\text{H}_{13}\text{N}_5\text{O}_5$ ♦ M_r 283.24 ♦ CAS [118-00-3]

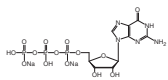
EINECS 204-227-8 ♦ WGK 1 ♦ HS 29349990

Assay (HPLC) min. 98.0 %
Assay (UV, 254 nm) min. 98.0 %

Cat.No.	Size	EUR
24270.02	25 g	38,00
24270.03	100 g	120,00

■ **Guanosine-5'-triphosphate- Na_2 -salt** analytical grade

(GTP)

 $\text{C}_{10}\text{H}_{14}\text{N}_5\text{O}_{14}\text{P}_3\cdot\text{Na}_2\cdot 3\text{H}_2\text{O}$ ♦ M_r 567.2 (anhydrous) ♦
CAS [56001-37-7]EINECS 259-940-7 ♦ WGK 1 ♦ HS 29389090
Storage temperature -15 °C to -25 °C *Assay from ϵ 252 nm, pH 7 min. 96.0 %
Water content max. 10.0 %

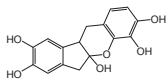
Cat.No.	Size	EUR
24321.02	100 mg	55,00
24321.03	250 mg	105,00

■ **Hematoxylin** pure

(Natural Black)

 $\text{C}_{16}\text{H}_{14}\text{O}_6$ ♦ M_r 302.29 ♦ CAS [517-28-2]**WARNING**H315-H319-H335 ♦ EINECS 208-237-3 ♦
WGK 2L ♦ HS 32030010

Tested for use in Delafield-Heidenhain staining. Light-sensitive.

 λ_{max} 0.004 % in acetonitrile 293 ± 3 nm
Indicator pH 5.0 - 6.0

Cat.No.	Size	EUR
24420.01	25 g	65,00
24420.02	100 g	218,00

■ **Hemin** cryst. research grade

(Hemin chloride; Chlorohemin; Ferriprotoporphyrin IX-chloride)

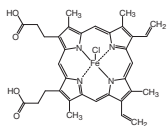
 $\text{C}_{34}\text{H}_{32}\text{FeN}_4\text{O}_4\cdot\text{Cl}$ ♦ M_r 652.0 ♦ CAS [16009-13-5]

EINECS 240-140-1 ♦ HS 32030090

Storage temperature +2 °C to +8 °C

Highly purified standard substance; specially developed for determination of hemoglobin (1). As labelling catalyst for luminescence immunoassay (2).

Assay (photometric) min. 98.0 %

References:1. Wolf, H.U. et al. (1984) Clin. Chim. Acta **136**, 95-104
2. Ikariyama, Y. & Suzuki, S. (1982) Anal. Chem. **54**, 1126-9

Cat.No.	Size	EUR
24410.01	1 g	15,00
24410.02	5 g	25,00
24410.03	25 g	95,00

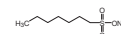
■ **Heparin sodium** research grade

WGK 1 ♦ HS 30019091

From porcine intestinal mucosa. Potency min. 180 IU/mg.

pH 1 % in water 5.5 - 8.0
Loss on drying max. 8.0 %
Heavy metals max. 30 ppm

Cat.No.	Size	EUR
24590.01	500 mg	22,00
24590.02	2,5 g	82,00
24590.03	10 g	240,00

■ **HEPES**see 25245 N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid, page 57,
148, 321, 355, 366■ **1-Heptanesulfonic acid-Na-salt** research grade $\text{C}_7\text{H}_{15}\text{O}_3\text{S}\cdot\text{Na}$ ♦ M_r 202.25 ♦ CAS [22767-50-6]**WARNING**

H315-H319-H335 ♦ EINECS 245-210-5 ♦ WGK 1 ♦ HS 29041000

Assay (titr.) min. 98.0 %
A 1 cm/220 nm/0.005 M in water max. 0.08

Cat.No.	Size	EUR
24604.01	5 g	25,00
24604.02	25 g	88,00

■ **Heteroauxins**

see 26181 Indole-3-acetic acid, page 59, 310

■ **His-Tag Purification**

see Chapter Sample Preparation, page 129

■ **L-Histidine-HCl monohydrate** cell culture grade

(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)

 $\text{C}_6\text{H}_9\text{N}_3\text{O}_2\cdot\text{HCl}\cdot\text{H}_2\text{O}$ ♦ M_r 209.6 ♦ CAS [5934-29-2]

EINECS 213-754-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying 7.0 - 10.0 %
Ammonium (NH_4) max. 0.02 %
Chloride (Cl) 16.66 - 17.08 %
Sulfate (SO_4) 0.02 %
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47208.01	100 g	47,00
47208.02	500 g	127,00

■ **L-Histidine base** cell culture grade

(His; L-2-Amino-3-(4-imidazolyl)propionic acid)

 $\text{C}_6\text{H}_9\text{N}_3\text{O}_2$ ♦ M_r 155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.2 %
Ammonium (NH_4) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO_4) max. 200 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47207.01	100 g	34,00
47207.02	500 g	134,00

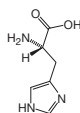
■ **L-Histidine base** research grade

(His; L-2-Amino-3-(4-imidazolyl)-propionic acid)
 $C_6H_9N_3O_2$ ♦ M_r 155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
24820.02	100 g	33,00
24820.03	1 kg	265,00

■ **L-Histidine-HCl monohydrate** research grade

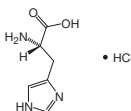
(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)

$C_6H_9N_3O_2 \cdot HCl \cdot H_2O$ ♦ M_r 209.6 ♦ CAS [5934-29-2]

EINECS 213-754-2 ♦ WGK 1L ♦ HS 29332990

Ph. Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
24842.02	100 g	47,00

■ **Histoplast-S**

HS 27129099

Special embedding medium for histology. Smooth sections can be obtained without cooling the knife or preparation. Histoplast-S is ductile and not brittle so that sections of thickness down to 4 µm are attainable without deformation. Use of Histoplast-S does not necessitate any change in staining or embedding techniques.

MP 55 - 57 °C
 Assay (Paraffin) 99.47 %

Cat.No.	Size	EUR
24895.01	1 kg	41,00

■ **Hoechst 33258**

see 15090 Bisbenzimidazole H 33258, page 18, 369

■ **2D HPE™ Double Gel 10 - 15 % Kit** Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43309.01	1 kit	inquire

■ **2D HPE™ Double Gel 12.5 % Kit** Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43308.01	1 kit	199,00

■ **2D HPE™ Double Gel NF 12.5 % Kit** Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strip plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings. Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43302.01	1 kit	inquire

■ **2D HPE™ Double Gel NF 10 - 15 % Kit** Size: 250 x 110 x 0.65

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43303.01	1 kit	inquire

■ **2D HPE™ Large Gel 10 - 15 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43311.01	1 kit	inquire

■ **2D HPE™ Large Gel 12.5 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43310.01	1 kit	269,00

■ **2D HPE™ Large Gel NF 10 - 15 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor™ II. Gels are on NF-backing providing best results for fluorescent staining and labelling. Also suitable for Silver and Coomassie® staining but for best results use gels on standard backing.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43305.01	1 kit	inquire

■ **2D HPE™ Large Gel NF 12.5 % Kit** Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Gels are on NF-backing providing best results for fluorescent staining and labelling. Also suitable for Silver and Coomassie® staining but for best results use gels on standard backing.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43304.01	1 kit	289,00

■ 2D HPE™ Triple Gel 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG-strips plus 2 marker lanes by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43307.01	1 kit	inquire

■ 2D HPE™ Triple Gel 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43306.01	1 kit	inquire

■ 2D HPE™ Triple Gel NF 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43301.01	1 kit	239,00

■ 2D HPE™ Triple Gel NF 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43300.01	1 kit	inquire

■ Hyaluronidase from ovine testes min. 1000 U/mg lyophil.

EC 3.2.1.35 ♦ M_r ca. 55 000 ♦ CAS [37326-33-3]

DANGER

H334 ♦ EINECS 253-464-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Unit definition: 1 U produces the same turbidity reduction in a mixture of hyaluronic acid and albumin as 1 I.U. (International Unit) of a standard hyaluronidase preparation (1).

References:

1. Mathews, M.B. (1966) Methods Enzymol. **8**, 654-62

Cat.No.	Size	EUR
25118.01	50 mg	21,00
25118.02	500 mg	139,00

■ 2-Hydroxy-5-sulfobenzoic acid

see 35706 5-Sulfosalicylic acid, page 109, 364

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid

analytical grade

(HEPES)

C₈H₁₈N₂O₄S ♦ M_r 238.3 ♦ CAS [7365-45-9]

EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

280 nm

Heavy metals (Pb)

pH 10 % in water

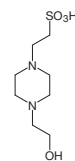
max. 0.1

max. 0.08

max. 10 ppm

5.0 - 6.5

References:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-772. Shipman Jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-103. Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid

·Na-salt research grade

(HEPES-Na-salt)

C₈H₁₇N₂O₄S-Na ♦ M_r 260.3 ♦ CAS [75277-39-3]

EINECS 278-169-7 ♦ WGK 1 ♦ HS 29335995

pKa 20 = 7.55

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

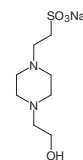
280 nm

pH 10 % in water

max. 0.15

max. 0.1

9.5 - 11.5



Cat.No.	Size	EUR
25249.03	100 g	50,00
25249.05	250 g	120,00
25249.04	1 kg	380,00

■ N-(2-Hydroxyethyl)trimethylammonium-chloride

see 17130 Choline-chloride, page 26, 319

■ 3-Hydroxypropionic acid lactone

see 33672 β-Propiolactone, page 84

■ 6-Hydroxypurine riboside

see 26250 Inosine, page 59

■ Hygromycin B solution

C₂₀H₃₇N₅O₁₃ ♦ M_r 527.53 ♦ CAS [31282-04-9]

DANGER

H300-H310-H315-H318-H330-H3

35 ♦ GGVSE/ADR 6.1 I UN2810 ♦

IATA 6.1 I UN2810 ♦ WGK 2 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

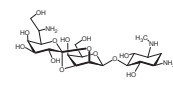
Aminoglycoside antibiotic that inhibits growth of procaryotic micro-organisms (bacteria), eukaryotic microorganisms (yeasts) and mammalian cells.

Inhibits protein synthesis at translocation step; causes misreading of mRNA. A gene from *E. coli* encoding resistance to hygromycin B can be isolated and cloned by recombinant DNA technology. It is useful for the identification or selection of recombinant clones in various cell types. 500 000 U correspond to approx. 1 ml.

Assay (HPLC) min. 80.0 %

Microbiological activity min. 400 000 U/ml

References:

1. Gonzales, A. et al. (1978) Biochim. Biophys. Acta **512**, 4592. Pardo, J.M. et al. (1985) J. Gen. Microbiol. **131**, 12893. Kuhstoss, S. & Rao, R.N. (1983) Gene **26**, 2954. Ma, H. et al. (1992) Gene **117**, 1615. Munshi, T. et al. (2013) PLOS ONE **8**(3): e60143

Cat.No.	Size	EUR
25966.01	500.000 U	82,00

■ **Hypoxanthine-9-β-D-ribofuranoside**

see 26250 Inosine, page 59

■ **IAA**

see 26181 Indole-3-acetic acid, page 59, 310

■ **IBA**

see 26172 Indole-3-butyric acid, page 59, 310

■ **IBMX**

see 26445 3-Isobutyl-1-methylxanthine, page 60

■ **IDA-Agarose Resins**

see 42140 SERVA IDA Metal-Free HD Agarose Resin, page 130

■ **IEF Sample Buffer (2x) sterile filtered**

HS 38220000

Storage temperature +2 °C to +8 °C

The SERVA IEF sample buffer is suited to all vertical and horizontal IEF applications and systems. The SERVA IEF sample buffer is supplied as 2x concentrate. It is sterile filtered, beneficial to long shelf life and absence of contaminants. The 2x concentrate is suited to liquid and solid samples. Simply mix the liquid sample 1:1 with the buffer or dissolve a solid sample in the buffer first and dilute with water 1:1. When performing IEF in the presence of urea mix the sample with the buffer and add solid urea or use concentrated urea solution.

The buffer contains 4 % SERVALYT™ 4 - 9 T, 30 % glycerol and 0.005 % phenol red.

Cat.No.	Size	EUR
42537.01	20 ml	21,00

■ **IEF Starter Kit**

DANGER

H314-H334-H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The kit contains:

3 SERVALYT™ PRECOTES™ 125 x 125 mm with PAG layer 300 µm

Electrode wicks	20
Applicator strips	1
Electrode buffer solutions	2 x 10 ml
Heat exchange liquid	10 ml
SERVA Blue W	100 mg
SERVA Violet 17	100 mg
IEF marker 3-10 SERVA Liquid Mix 60 µl	

Cat.No.	Size	EUR
39060.01	1 kit	165,00

■ **IgG Sample Diluter IEF**

HS 38220000

Dilution buffer required for CSF analysis in IEF gels.

Cat.No.	Size	EUR
43336.01	100 ml	21,00

■ **IMAC Agarose Resins**

see Chapter Sample Preparation, page 129

■ **Imidazole research grade**C₃H₄N₂ ♦ M, 68.08 ♦ CAS [288-32-4]

DANGER

H301-H314-H361d ♦ GGVSE/

ADR 8 III UN2923 ♦ IATA 8 III UN2923 ♦

EINECS 206-019-2 ♦ WGK 1L ♦ HS 29332990

Assay (GC)

min. 99.0 %



Cat.No.	Size	EUR
26081.01	100 g	25,00
26081.02	500 g	79,00

■ **Immobilon™-P-membrane**

Pore size 0.2 µm, format: 26.5 cm x 3.75 m

HS 39219090

Pore size 0.2 µm, format: 26.5 cm x 3.75 m Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Immobilon = trademark of Millipore.

Cat.No.	Size	EUR
42574.01	1 roll	670,00

■ **Immobilon™-P-membrane**

Pore size 0.45 µm, format: 26.5 cm x 3.75 m

HS 39219090

Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Cat.No.	Size	EUR
42581.01	1 roll	540,00

■ **Includal A**

HS 38220000

Universal aqueous, self-hardening slide mounting medium for microscopy. It is pH-neutral and suitable for all standard staining methods.

Refractive index 1.51 - 1.53

Cat.No.	Size	EUR
23314.01	10 ml	13,00

■ **Includal AC after Hoyer**

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is especially suitable for entomological and botanical specimens.

Refractive index 1.41 - 1.43

Cat.No.	Size	EUR
23315.01	30 ml	15,00

■ **Includal CB for microscopy**

HS 38220000

Synthetic canada balsam. Non-aqueous, non evanescent mounting medium for microscopy. Xylene-free alternative for Malinol, Renohistol. If necessary, the viscosity can be adjusted with the included thinner.

Refractive index 1.51

Cat.No.	Size	EUR
23324.01	100 ml	42,00

■ **Includal DMHF**

HS 38220000

Aqueous, rapidly self-hardening slide mounting medium for microscopy based on dimethyl hydantoin formaldehyde resin. For use in entomology.

Refractive index 1.38 - 1.40

Cat.No.	Size	EUR
23320.01	10 ml	19,00

■ **Includal PVA**

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is adjusted to be slightly acidic and clarifying. Especially suitable for entomological and histological specimens.

Refractive index 1.43 - 1.47

Cat.No.	Size	EUR
23316.01	10 ml	14,00

■ **Includal PVL**

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy on polyvinyl alcohol basis. It is adjusted to be slightly acidic for use in entomology.

Refractive index 1.42 - 1.44

Cat.No.	Size	EUR
23318.01	10 ml	16,00

■ **Includal PVLA**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinyl alcohol basis for use in entomology. It is rapidly self-hardening with higher solids content.

Refractive index 1.41 - 1.43

Cat.No.	Size	EUR
23319.01	10 ml	16,00

■ **Includal PVP**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinylpyrrolidone basis. It is pH neutral and rapidly self-hardening. Especially suitable for sensitive staining.

Refractive index 1.42 - 1.44

Cat.No.	Size	EUR
23317.01	10 ml	18,00

■ **Indole-3-acetic acid** research grade

(IAA; Heteroauxins; Auxins)

 $C_{10}H_9NO_2$ ♦ M_r 175.2 ♦ CAS [87-51-4]

EINECS 201-748-2 ♦ HS 29339980

Storage temperature +2 °C to +8 °C

Assay (titr.) 97.0 - 103.0 %

MP 165 - 169 °C

References:1. Graffeo, A. et al. (1976) Clin. Chem. **22**, 184-7

Cat.No.	Size	EUR
26181.01	5 g	27,00

■ **Indole-3-butyric acid** research grade

(4-(3-Indolyl)butyric acid; IBA; Auxins)

 $C_{12}H_{13}NO_2$ ♦ M_r 203.24 ♦ CAS [133-32-4]

 DANGER
H301-H315-H319-H335 ♦ GGVSE/
ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 205-101-5 ♦ WGK 2 ♦ HS 29339980

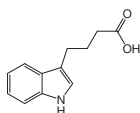
Storage temperature +2 °C to +8 °C

Plant growth regulator. Sensitive to light, store in the dark.

Assay (titr.) min. 99.0 %

Water (KF) max. 1.0 %

Cat.No.	Size	EUR
26172.02	5 g	24,00
26172.03	25 g	80,00
26172.04	100 g	198,00

■ **Inosine** research grade

(Hypoxanthine-9-β-D-ribofuranoside; 6-Hydroxypurine riboside)

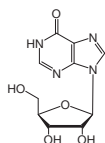
 $C_{10}H_{12}N_4O_5$ ♦ M_r 268.23 ♦ CAS [58-63-9]

EINECS 200-390-4 ♦ WGK 1 ♦ HS 29349990

Assay from ε249 nm, pH 7 min. 98.0 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26250.02	25 g	33,00
26250.03	100 g	98,00

■ **meso-Inositol**see 26310 *myo*-Inositol, page 59, 321■ **myo-Inositol** research grade(meso-Inositol; i-Inositol; 1,2,3,5/4,6-Hexahydroxycyclohexane) $C_6H_{12}O_6$ ♦ M_r 180.2 ♦ CAS [87-89-8]

EINECS 201-781-2 ♦ WGK 1 ♦ HS 29061390

USP/NF. For bacteriology. Optically inactive. Tested for its suitability in tissue culture.

Assay (HPLC) min. 97.0 %
MP 224 - 227 °C

Cat.No.	Size	EUR
26310.01	100 g	29,00
26310.02	500 g	113,00

■ **Insulin, recombinant human, min. 27.5 IU/mg** M_r ca. 5800 ♦ CAS [11061-68-0]

HS 29371200

Storage temperature -15 °C to -25 °C

Ph.Eur., USP. Identical in structure and function to the native human sequence. Essential for long-term growth of various cell lines. Stimulates the proliferation of cells and supports carbohydrate metabolism. Absence of insulin in the medium may result in disturbances of cell morphology and growth rate. Recommended concentration for use in serum free media is 1 - 10 µg/ml.

Assay 95.0 - 105.0 %

Bacterial endotoxins (IU/mg) max. 10

Cat.No.	Size	EUR
26360.01	50 mg	87,00
26360.02	250 mg	330,00

■ **INT**

see 26840 Iodonitrotetrazolium chloride, page 60, 345

■ **Inulin** research grade

(Poly-β-(2 → 1) fructofuranosan with glucose endgroups; polyfructose)

 $(C_6H_{10}O_5)_n$ ♦ M_r (162.1)_n ♦ CAS [9005-80-5]

EINECS 232-684-3 ♦ WGK 1 ♦ HS 11082000

[α] D/20 °C (c=2 in water) -36.5 ° to - 40.5 °

Cat.No.	Size	EUR
26362.02	25 g	60,00
26362.03	100 g	203,00

■ **Iodoacetamide** research grade C_2H_4INO ♦ M_r 185.0 ♦ CAS [144-48-9]

 WARNING
H315-H317-H319-H335 ♦ EINECS 205-630-1 ♦ WGK 2
♦ HS 29241900

Storage temperature +2 °C to +8 °C

Alkylating agent for use in protein sample preparation applications. For carboxymethylation of proteins.

Assay (from N) min. 99.0 %

References:1. Gurd, F.R. (1967) Methods Enzymol. **11**, 532-41

Cat.No.	Size	EUR
26710.01	5 g	16,00
26710.02	25 g	44,00



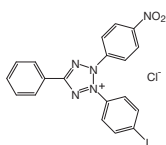
Products for Life Sciences:
see special chapter at p. 275

■ **Iodonitrotetrazolium chloride** research grade

(INT; 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyl-2H-tetrazolium-chloride; Iodonitrotetrazolium violet)
 $C_{19}H_{13}ClIN_5O_2$ ♦ M_r 505.72 ♦ CAS [146-68-9]



WARNING
 H302-H312-H332 ♦ EINECS 205-676-2 ♦
 WGK 1 ♦ HS 29339980



For LDH detection (1).

For colorimetric measurement of enzymatic hydrolysis of terminal galactose from GM₁ ganglioside (2).

Assay (titr.) min. 99.0 %

References:

1. Babson, A.L. & Babson, S.R. (1973) Clin. Chem. **19**, 766-9
2. Urbanowski, J.C. et al. (1980) Anal. Biochem. **105**, 461-7

Cat.No.	Size	EUR
26840.02	2,5 g	25,00
26840.03	10 g	70,00
26840.04	50 g	285,00

■ **Ion Exchange Media**

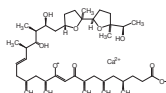
see Special Section, page 375

■ **Ionomycin-Ca-salt** research grade

$C_{41}H_{70}O_9 \cdot Ca$ ♦ M_r 747.1 ♦ CAS [56092-82-1]



WARNING
 H302-H312-H332 ♦ WGK 1 ♦ HS 29419000
 Storage temperature +2 °C to +8 °C



Ionophore polyether antibiotic from *Streptomyces conglobatus*. Highly specific for bivalent ions, more effective than A 23187 as a Ca^{2+} ionophore. Active against Gram-positive bacteria. Used for studies on Ca^{2+} transport through membranes (1,2,4,5); induces apoptosis (3,6,7).

Purity (HPLC, TLC) min. 98.0 %
 MP min. 198 °C

References:

1. Beeler, T.J. et al. (1979) J. Biol. Chem. **254**, 6229-31
2. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
3. Gil-Parrado, S. et al. (2002) J. Biol. Chem. **277**, 27217-26
4. Abramov, A.Y. a. Duchon, M.R. (2003) Cell Calcium **33**, 101-12
5. Caverra, M.S. et al. (2003) J. Exp. Zool. A. Comp. Exp. Biol. **297**, 130-7
6. Mc. Collum, A.T. et al. (2004) J. Neurosci. Res. **76**, 104-9
7. Baines, C.P. et al. (2005) Nature **434**, 658-62
8. Zhou Y. et al. (2010) Nature Struct. Mol. Biol. **17**, 112-6

Cat.No.	Size	EUR
26379.01	1 mg	95,00

■ **IPG Chamber Cleaner**

HS 34022090

IPG Chamber Cleaner is a pH-neutral, non-toxic, highly active cleaning material. It has been specifically formulated for effectively removing protein deposits from the IPG strip holder, lids, etc. of a First-Dimension Isoelectric Focusing Unit, e.g. IEF100.

Cat.No.	Size	EUR
43399.01	1 L	35,00

■ **IPG Strips**

see SERVA IPG BlueStrip, page 93, 213

■ **IPGT**

see 26600 Isopropyl-β-D-thiogalactopyranoside, page 61, 298, 346

■ **Isoamyl alcohol** molecular biology grade

(3-Methyl-1-butanol; Isopentylalcohol)
 $C_5H_{12}O$ ♦ M_r 88.15 ♦ CAS [123-51-3]



WARNING
 H226-H332-H335 ♦ MAK/TRK 370 mg/m³; 100 ml/m³ ♦
 EG-Index 603-006-00-7 ♦ GGVSE/ADR 3 III UN1105 ♦
 IATA 3 III UN1105 ♦ EINECS 204-633-5 ♦ WGK 1L ♦ HS 29051490

DNase, RNase, Proteases not detected. Suitable for use in nucleic acid purification. Isoamyl alcohol prevents foaming during nucleic acid extraction with Phenol:Chloroform:Isoamyl alcohol.

Assay (total isomers, GC) min. 99.0 %
 Acidity (as CH_3COOH) max. 0.003 %
 Water (KF) max. 0.5 %
 Residue on evaporation max. 0.002 %
 Heavy metals (as Pb) max. 0.00001 %
 Zinc max. 0.00001 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.3-E.4)

Cat.No.	Size	EUR
39557.01	250 ml	25,00
39557.02	1 L	54,00

■ **3-Isobutyl-1-methylxanthine** research grade

(IBMX)

$C_{10}H_{14}N_4O_2$ ♦ M_r 222.2 ♦ CAS [28822-58-4]

EINECS 249-259-3 ♦ HS 29335995

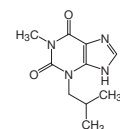
Inhibitor of cAMP-phosphodiesterase. Soluble in ethanol.

Assay (HPLC) min. 98.0 %
 MP 198 - 202 °C

References:

1. Ashcroft, S.J.H. et al. (1973) FEBS Lett. **20**, 263-6

Cat.No.	Size	EUR
26445.02	500 mg	59,00

■ **L-Isoleucine** cell culture grade

((2S, 3S)-2-Amino-3-methylpentanoic acid; 2-amino-3-methylvaleric acid; ILE)

$C_6H_{13}NO_2$ ♦ M_r 131.17 ♦ CAS [73-32-5]

EINECS 200-798-2 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.2 %
 Ammonium (NH_4) max. 200 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47209.01	25 g	17,00
47209.02	100 g	43,00

■ **L-Isoleucine** research grade

((2S, 3S)-2-Amino-3-methylpentanoic acid; 2-amino-3-methylvaleric acid; ILE)

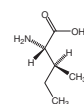
$C_6H_{13}NO_2$ ♦ M_r 131.17 ♦ CAS [73-32-5]

EINECS 200-798-2 ♦ WGK 1L ♦ HS 29224985

USP, EP.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26540.03	100 g	33,00
26540.06	500 g	132,00



BlueLine Equipment
for Electrophoresis:
 see special chapter at p. 253

■ **Isopropanol** analytical gradeC₃H₈O ♦ M_r 60.1 ♦ CAS [67-63-0]

DANGER

H225-H319-H336 ♦ EG-Index 603-117-00-0 ♦ GGVSE/
ADR 3 II UN1219 ♦ IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦
WGK 1 L ♦ HS 29051200

Assay (GC)	min. 99.7 %
Density (20 °C)	0.785
Water	max. 1000 ppm
Acidity	max. 0.001 %
Residue on evaporation	max. 10 ppm

Cat.No.	Size	EUR
45629.01	1 L	19,00
45629.02	2,5 L	38,00

■ **Isopropanol** molecular biology grade

(2-Propanol)

C₃H₈O ♦ M_r 60.09 ♦ CAS [67-63-0]

DANGER

H225-H319-H336 ♦ MAK/TRK 500 mg/m³; 200 ml/m³ ♦
EG-Index 603-117-00-0 ♦ GGVSE/ADR 3 II UN1219 ♦
IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦ WGK 1 L ♦ HS 29051200Suitable for the precipitation of nucleic acids. When compared to ethanol
50 % less is required for nucleic acid precipitation.

Purity (GC)	min. 99.7 %
Water	max. 0.1 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning,
2. Cold Spring Harbor Laboratory Press (E.13-E.14)

Cat.No.	Size	EUR
39559.01	250 ml	19,00
39559.02	1 L	35,00

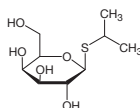
■ **Isopropyl-β-D-thiogalactopyranoside** research grade

(IPTG; Isopropyl-1-thio-β-D-galactopyranoside)

C₉H₁₈O₅S ♦ M_r 238.3 ♦ CAS [367-93-1]

EINECS 206-703-0 ♦ WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C



Analog of galactose, not split by β-galactosidase.

Inducer of the lac operon in bacteria. Used in conjunction with X-Gal
(5-bromo-4-chloro-indolyl-β-D-galactoside, cat. no. 15243) for detection of
lac⁺ colonies. Dissolve in H₂O to 200 mg/ml, sterilize by filtration and store in
aliquots at -20 °C. For detection of transformants, use in final concentration
of 0.1 mM.

Assay (HPLC)	98.0 - 101.0 %
[α] _D 20 °C/D (c=1 in water)	-28.5 ° to -34.5 °
1,4-Dioxane	not detected

References:

1. Donner, J. et al. (1982) J. Biol. Chem. **257**, 14826-9
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (4.33, 4.37-4.38, 1.8-1.9, 17.12-17.13, B.11)
3. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (1.4.3, 16.2.3, 1.15.1)

Cat.No.	Size	EUR
26600.03	1 g	21,00
26600.04	10 g	95,00
26600.06	50 g	325,00

■ **Kanamycin acid sulfate** research gradeC₁₈H₃₆N₄O₁₁ · 1.7 H₂SO₄ ♦ M_r 651.2

HS 29419000

Storage temperature +2 °C to +8 °C

BP. Min. 670 U/mg. Kanamycin acid sulfate is a form of kanamycin sulfate
prepared by adding sulfuric acid to a solution of kanamycin sulfate and
drying by a suitable method. Sulfate content: 23 - 26 %, compared to
15 - 17 % in kanamycin sulfate.**References:**

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. **Review:**
Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotic chemistry, vol. **3**,
Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
5. Spena, A. a. Schell, J. (1987) Mol. Gen. Genetics **206**, 436-40
6. Busch, M. et al. (2002) Plant Physiol. **128**, 439-53

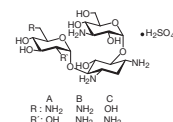
Cat.No.	Size	EUR
26898.01	1 g	16,00
26898.02	5 g	37,00
26898.03	25 g	127,00

■ **Kanamycin sulfate** molecular biology gradeC₁₈H₃₆N₄O₁₁ · H₂SO₄ · H₂O ♦ M_r 600.6 ♦ CAS [25389-94-0]

DANGER

H360D ♦ EINECS 246-933-9 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. Min. 750 U/mg. Aminoglycoside antibiotic. Mechanism of action
similar to streptomycin sulfate. HPLC (2).**References:**

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotic chemistry, vol. **3**,
Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics: Springer, New York
5. Nakashima, K. et al. (1999) J. Biol. Chem. **274**, 27786-92
6. Vetting, M.W. et al. (2002) Nature Struct. Biol. **9**, 653-8
7. Lambert, C. et al. (2003) Environm. Biol. **5**, 127-32
8. Kataoka, T. et al. (2004) Plant Physiol. **136**, 4198-204

Cat.No.	Size	EUR
26899.01	1 g	16,00
26899.02	5 g	31,00
26899.03	25 g	78,00

■ **Kerosene, low odor**

CAS [8008-20-6]



DANGER

H304 ♦ EG-Index 649-404-00-4 ♦ EINECS 232-366-4 ♦ WGK 1 ♦
HS 27101925

Suitable as cooling fluid in horizontal electrophoresis.

Cat.No.	Size	EUR
26945.01	1 L	51,00

■ **Kinetin** analytical grade

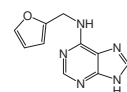
(6-Furfurylaminopurine)

C₁₀H₉N₅O ♦ M_r 215.21 ♦ CAS [525-79-1]

EINECS 208-382-2 ♦ HS 29349990

Plant growth regulator.

Assay (HPLC) min. 99.5 %



Cat.No.	Size	EUR
27190.02	1 g	31,00
27190.04	5 g	93,00

■ Lactate dehydrogenase from porcine heart

min. 300 U/mg protein 2xcryst. suspension

(L-LDH; Lactate; NAD⁺ oxidoreductase)

EC 1.1.1.27 ♦ M_r ca. 140 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Highly purified suspension of 2x cryst. material in 70 % saturated ammonium sulphate, pH approx. 7.2.

Preparation contains predominantly isoenzymes LDH 1 and 2. LDH is used for the determination of lactate (1) and in coupled systems for detection of biological metabolites.

Unit definition: 1 U catalyzes the reduction of 1 μmole of pyruvate to L-lactate per minute at 25 °C, pH 7.0 in the presence of NADH (oxidation of 1 μmole NADH) (2).

Extraneous activities: PK, GPT, each max. 0.01 %; MDH max. 0.05 %

References:

1. Wahlefeld, A.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 3, p. 126-33
2. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed., vol. 2, p. 232-3

Cat.No.	Size	EUR
27415.01	25 mg	27,00
27415.02	100 mg	77,00

■ L-Lactic acid-Na-salt cryst. research grade

(Sodium lactate)

C₃H₅O₃-Na ♦ M_r 112.1 ♦ CAS [867-56-1]

EINECS 212-762-3 ♦ HS 29181100

Suitable as LDH-substrate.

Assay (titr.) min. 99.0 %
[α] 20 °C/D (c=1 in water) -12.0 ° ± 1.0 °



Cat.No.	Size	EUR
29763.01	5 g	20,00
29763.02	25 g	70,00

■ Lactoflavin

see 34350 Riboflavin, page 88, 324

■ Lactose research grade

(β-D-Galactopyranosyl-(1→4)-D-Glucose

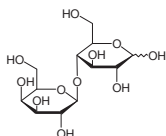
Monohydrate; Milk sugar)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.3 ♦ CAS [10039-26-6]

EINECS 200-559-2 ♦ HS 17021100

Ph.Eur.

Heavy metals (Pb) max. 5 ppm
[α] 20 °C/D (c=10 in H₂O) +54.4 ° to +55.9 °
Water 4.5 - 5.5 %



Cat.No.	Size	EUR
27451.02	1 kg	34,00

■ Laemmli Buffer 10x, for SDS-PAGE

HS 38220000

Running buffer for SDS-PAGE. Supplied as 10 x concentrate.

Contains 0.25 M Tris, 1.92 M Glycine and 1 % SDS in aqueous solution.

Cat.No.	Size	EUR
42556.01	2 L	48,00
42556.04	10 L	125,00

■ Laemmli Sample Buffer 2x, for SDS PAGE

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2x concentrate. Contains 126 mM Tris/Cl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42526.01	20 ml	18,00
42526.02	5 x 20 ml	76,00

■ N-Lauroylsarcosine-Na-salt 30 % solution

(Sarkosyl NL-30; Oramix L30)

C₁₅H₂₈NO₃Na ♦ M_r 293.4



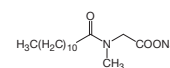
DANGER

H315-H318 ♦ WGK 1 ♦ HS 38089490

Disinfectant. Active substance 28.5 - 32.0 %.

pH (3 % in water)

7.5 - 8.5



Cat.No.	Size	EUR
27570.01	500 ml	33,00
27570.02	5 L	221,00

■ Lauryl-β-D-maltoside

see 20780 Dodecyl-β-D-maltoside, page 40, 144, 246

■ LavaPurple™

see 43386 SERVA Purple, page 96, 240

■ LB Agar (Lennox), Powder 35 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone

5 g/l Yeast extract

5 g/l NaCl

15 g/l Agar

For making 1 L liquid medium suspend 35 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving. Cool to 45 °C prior to dispensing into sterile petri dishes.

References:

1. Luria, S.E., et al., Virology **12**, 348-390 (1960)
2. Miller, J.H., Experiments in Molecular Genetics, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size	EUR
48502.01	700 g	55,00

■ LB Medium (Lennox), Powder 20 g for 1 liter medium

WGK 1 ♦ HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone

5 g/l Yeast extract

5 g/l NaCl

For making 1 L liquid medium suspend 20 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

References:

1. Luria, S.E., et al., Virology **12**, 348-390 (1960)
2. Miller, J.H., Experiments in Molecular Genetics, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size	EUR
48501.01	500 g	38,00

■ L-LDH

see 27415 Lactate dehydrogenase from porcine heart min. 300 U/mg protein, page 62, 335

■ Lecithin from egg yolk pure

CAS [93685-90-6]

EINECS 297-639-2 ♦ HS 29232000

Storage temperature -15 °C to -25 °C

Phosphatidyl choline

min. 60.0 %

Iodine number

min. 60.0

Peroxide value

max. 3

Cat.No.	Size	EUR
27608.01	25 g	25,00
27608.02	100 g	75,00
27608.03	500 g	325,00

■ Lecithin from soybean

(Vegetable lecithin)

HS 29232000

Storage temperature +2 °C to +8 °C

Phosphatidyl choline	min. 18.0 - 25.0 %
Acetone insol. substance	min. 96.5 %
Toluol soluble substances	max. 0.3 %

Cat.No.	Size	EUR
57556.01	100 g	16,00
57556.02	1 kg	59,00

■ L-Leucine cell culture grade

(Leu; L-2-Amino-4-methylpentanoic acid; 2-Amino-4-methylvaleric acid)

 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [61-90-5]

EINECS 200-522-0 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47210.01	100 g	33,00
47210.02	500 g	110,00

■ L-Leucine research grade

(Leu; L-2-Amino-4-methylpentanoic acid; 2-Amino-4-methylvaleric acid)

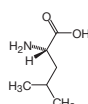
 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [61-90-5]

EINECS 200-522-0 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)	min. 98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm.

Cat.No.	Size	EUR
27690.02	100 g	27,50
27690.03	500 g	95,00



■ Leupeptin

(Acetyl-L-leucyl-L-leucyl-L-argininal)

 $C_{20}H_{38}N_6O_4 \cdot 1/2 H_2SO_4$ ♦ M_r 475.6 ♦ CAS [103476-89-7]

WARNING
H302-H332 ♦ WGK 1 ♦ HS 29241900
Storage temperature -15 °C to -25 °C

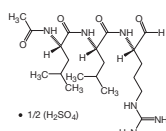
Inhibitor of serine and cysteine proteases.

Assay (HPLC)	min. 96.5 %
(sum of tautomeric isomers)	

References:

1. Umezawa, H. (1976) Methods Enzymol. **45**, 678-83
2. Carlini, C. et al. (1994) J. Cell. Physiol. **160**, 427-34
3. Savory, P.J. & Rivett, A.J. (1993) Biochem. J. **289**, 45-8
4. Eto, I. & Bandy, M.D. (1990) Mol. Cell. Biochem. **94**, 19-36
5. Benistani, B. et al. (1994) Biochim. Biophys. Acta **1223**, 84-90

Cat.No.	Size	EUR
51867.02	10 mg	40,00
51867.03	50 mg	145,00



■ Levulose

see 21830 D-Fructose, page 46

■ Lowry Assay Kit



DANGER

H314-H412 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on Lowry's method (1). It contains ready-to-use reagents and protein standard. The assay is fast and has a sensitivity of 50 µg protein/ml.

Sufficient for 250 2-ml assays.

References:

1. Lowry O. H., et al. (1951) J. Biol. Chem **193**, 265 - 275

Cat.No.	Size	EUR
39236.01	250 tests	70,00

■ Lubrol 17A17

(Lubrol W1; Lubrol WX)



WARNING

H302-H319 ♦ WGK 1 ♦ HS 34021300

Ethylene oxide condensate of fatty alcohols; cetyl-stearyl ether.
Nonionic surfactant, emulsifier.

MP	34 - 38 °C
Hydroxyl number	53.0 - 60.0
pH 1 % in water	7.0 - 9.0

Cat.No.	Size	EUR
28070.01	100 g	36,00
28070.02	500 g	98,00

■ D-Luciferin cryst. research grade

(4,5-Dihydro-2-[6-hydroxy-2-benzothiazolyl]-4-thiazolecarboxylic acid)

 $C_{11}H_8N_2O_3S_2$ ♦ M_r 280.3 ♦ CAS [2591-17-5]

EINECS 219-981-3 ♦ HS 29342080

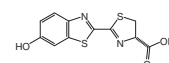
Storage temperature -15 °C to -25 °C

Synthetic. Addition of luciferin to the luciferin-luciferase system increases ATP detection limit 1000 fold. Suitable for luciferase assay and ATP measurement. For luciferase assay prepare stock solution of 1 mM D-Luciferin, 25 mM glycylglycine, 10 mM DTT (cat. no. 20710), store aliquots at -70 °C.

References:

1. Karl, D. & Holm, O. (1976) Anal. Biochem. **75**, 100-12

Cat.No.	Size	EUR
28073.02	10 mg	39,00
28073.03	50 mg	145,00



■ Luminol research grade

(3-Aminophthalhydrazine; 5-Amino-2,3-dihydro-1,4-phthalazinedione)

 $C_8H_7N_3O_2$ ♦ M_r 177.2 ♦ CAS [521-31-3]

WARNING

H302-H332 ♦ EINECS 208-309-4 ♦ WGK 1 ♦
HS 29280090

For microdetermination of superoxide dismutase (2). Peroxidase reagent (1).

Assay (titr.)	min. 95.0 %

References:

1. Freeman, T.M. & Seitz, W.R. (1978) Anal. Chem. **50**, 1242-6
2. Huu, T.P. et al. (1984) Anal. Biochem. **142**, 467-2
3. Roswell, D.F. & White, E.H. (1978) Methods Enzymol. **57**, 409-23
4. Leong, M.M. L. & Fox, G.R. (1990) Methods Enzymol. **184**, 442-51

Cat.No.	Size	EUR
28085.02	5 g	29,00
28085.03	25 g	116,00



■ L-Lysine cryst. research grade

(Lys; L-2,6-Diaminohexanoic acid; 2,6-Diaminocaproic acid)

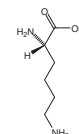
 $C_6H_{14}N_2O_2 \cdot H_2O$ ♦ M_r 164.21 ♦ CAS [39665-12-8]

EINECS 200-294-2 ♦ WGK 1L ♦ HS 29224100

Storage temperature +2 °C to +8 °C

Assay (titr.)	98.5 - 101.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
28195.01	25 g	25,00
28195.02	100 g	55,00
28195.03	500 g	190,00



■ L-Lysine-HCl cell culture grade

(Lys-HCl; L-2,6-Diaminohexanoic acid-HCl; 2,6-Diaminocaproic acid-HCl)
 $C_6H_{14}N_2O_2 \cdot HCl$ ♦ M_r 182.7 ♦ CAS [657-27-2]

EINECS 211-519-9 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxine	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 30 ppm

Cat.No.	Size	EUR
47211.01	100 g	33,00
47211.02	500 g	110,00

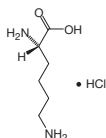
■ L-Lysine-HCl research grade

(Lys-HCl; L-2,6-Diaminohexanoic acid-HCl; 2,6-Diaminocaproic acid-HCl)
 $C_6H_{14}N_2O_2 \cdot HCl$ ♦ M_r 182.7 ♦ CAS [657-27-2]

EINECS 211-519-9 ♦ WGK 1L ♦ HS 29224100

Ph. Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm



Cat.No.	Size	EUR
28220.01	100 g	19,00
28220.02	500 g	61,00

■ Lysozyme from chicken egg white

min. 100 000 units/mg cryst.

(Muramidase; mucopeptide-glycohydrolase; mucopeptide N-acetyl-muramoylhydrolase)

EC 3.2.1.17 ♦ M_r ca. 14 400 ♦ CAS [12650-88-3]



DANGER

H334 ♦ EINECS 235-747-3 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Crystalline powder in hydrochloride form. Lysozyme hydrolyzes the β 1 → 4 linkages of the murein between N-acetylmuramic acid and N-acetyl-D-glucosamin, and degrades the heteroglycan chain to disaccharides. This reaction leads to cell lysis in most gram-positive bacteria e.g. *Micrococcus luteus*. Lysis can be prevented if the reaction is performed in an isotonic sucrose medium. Under these assay conditions protoplasts are produced which no longer have a cell wall. The lysis of *Micrococcus luteus* cells is used for the activity testing of lysozyme. In gram-negative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca^{2+} ions are removed by treatment with e.g. EDTA, the murein becomes susceptible to lysozyme. Suitable for hydrolysis of bacterial cell walls and of proteoglycans (1, 2, 4).

Unit definition: 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 7.0, in a suspension of *Micrococcus luteus* cells (reaction volume 3 ml, light path 1 cm) (3).

Isoelectric point: 10.5 - 11.0

Optimum pH: 9.2

References:

- Imoto, T. et al. (1972) The Enzymes **VII**, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.22, 1.34, 1.36, 1.38, 17.38, 1.29, B.17)
- Shugar, D. (1952) Biochim. Biophys. Acta **8**, 302-9
- Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
28262.02	2,5 g	28,00
28262.03	10 g	73,00
28262.04	50 g	286,00

■ Macerozyme R-10 from *Rhizopus sp.* lyophil.

(»Macerating Enzyme«; »Cell Separating Enzyme«)

EC 3.2.1.15 ♦ CAS [9032-75-1]



DANGER

H334 ♦ EINECS 232-885-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Macerozyme R-10 is suitable for the isolation of plant cells, and can be used in combination with cellulase »Onozuka R-10« (cat. no. 16419) (1, 2) and with Cellulase »Onozuka RS« (cat. no. 16420).

Activities: Pectinase ca. 0.5 U/mg

Unit definition: 1 U catalyzes the liberation of 1 μ mole of reducing groups from pectic acid per minute at 25 °C, pH 4.5 calculated as galacturonic acid. Reducing groups determined with alkaline copper reagent (2).

Hemicellulase: ca. 0.25 U/mg

Unit definition: 1 U is equivalent to 1 μ mole of reducing groups released from beechwood xylan per hour at 37 °C, pH 5.5, calculated as xylose.

Cellulase: ca. 0.1 U/mg

Unit definition: 1 U catalyzes the liberation of 1 μ mole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

pH-optimum: 3.5 - 7.0

Temperature optimum: 40 - 50 °C.

References:

- Yamada, Y. et al. (1972) Agr. Biol. Chem. **36**, 1055-9
- Barracough, R. & Ellis, R.J. (1979) Eur. J. Biochem. **94**, 165-77
- Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
28302.02	2,5 g	43,00
28302.03	10 g	125,00
28302.04	50 g	475,00

■ α_2 -Macroglobulin from human plasma lyophil.

(α_2 -M)

M_r 725 000 ♦ CAS [95568-41-5]

HS 35040090

Storage temperature -15 °C to -25 °C

Homogeneous by SDS-PAGE. Contains glycine as stabilizer. Major plasma protein in humans. Functions range from ion transport to the inhibition of proteinases. Inhibits most endoproteinases. Elevated levels are seen in clinical conditions such as cirrhosis, nephrotic syndrome, severe burns and diabetes (1). Package weight refers to weight of α_2 -macroglobulin.

References:

- Barrett, A.J. (1981) Methods Enzymol. **80**, 737-54
- Travis, J. & Salvesen, G.S. (1983) Ann. Rev. Biochem. **52**, 655-709

Cat.No.	Size	EUR
28301.01	1 mg	89,00

■ Macrogol

see 33136 Polyethylene glycol 4000, page 81, 149, 374

■ Magenta O

see 31627 Parafuchsin, page 76

■ Magnesium chloride-6H₂O cryst. research grade

$MgCl_2 \cdot 6H_2O$ ♦ M_r 203.3 ♦ CAS [7791-18-6]

EINECS 232-094-6 ♦ WGK 1L ♦ HS 28273100

Ph.Eur.

Assay (titr.; hydrate)	98.0 - 101.0 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
28305.01	100 g	12,00

■ Magnesium chloride-6H₂O molecular biology grade

$MgCl_2 \cdot 6H_2O$ ♦ M_r 203.3 ♦ CAS [7791-18-6]

HS 28273100

DNase/RNase not detected.

Assay (titr., hydrate)	98.0 - 101.0 %
Heavy metals (Pb)	max. 0.001 %

Cat.No.	Size	EUR
39771.01	500 g	29,50

■ Magnesium chloride, solution 1 M molecular biology grade

HS 38220000

DNase/RNase not detected.

Composition:
MgCl₂·6H₂O (cat. no. 39771) 203.30 g/l

Cat.No.	Size	EUR
39772.01	100 ml	17,00
39772.02	500 ml	29,50

■ Magnesium sulfate heptahydrate molecular biology grade

MgSO₄·7H₂O ♦ M_r 246.48 ♦ CAS [10034-99-8]

EG-Index 231-298-2 ♦ WGK 1 ♦ HS 28332100

DNase/RNase not detected.

Assay (titr.) min. 99.5 %
 Heavy metals (as Pb): max. 0.001 %
 Chloride (Cl) max. 0.0005 %

Cat.No.	Size	EUR
39773.01	100 g	18,00
39773.02	500 g	45,00

■ Malachite green oxalate research grade

(Basic Green 4)

C.I.42000 ♦ (C₂₃H₂₅N₂)₂·C₂O₄²⁻·2C₂H₂O₄ ♦ M_r 927 ♦ CAS [2437-29-8]

DANGER

H302-H318-

H361D-H400-H410 ♦ EG-Index 602-096-00-5 ♦
 GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦
 EINECS 219-441-7 ♦ WGK 3L ♦ HS 32041300

Suitable for bacteriology and histological staining. For fifty-fold amplification of the Lowry protein assay.

λmax. 0.0001 % in H₂O 618 ± 2 nm
References:
1. Sargent, M.G. (1987) Anal. Biochem. **163**, 476-81

Cat.No.	Size	EUR
28335.03	25 g	16,00

■ Malate dehydrogenase from porcine heart mitochondria min. 1500 U/mg protein suspension

(MDH)

EC 1.1.1.37 ♦ M_r ca. 70 000

DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A highly purified suspension in 80 % saturated ammonium sulfate. Suitable for GOT determination in serum.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the reduction of 1 μmole oxaloacetate to malate (oxidation of 1 μmole NADH) per minute at 25 °C, pH 7.4 (1).

Extraneous activities: GPT, LDH, GOT, GLDH, CK and fumarase less than 0.003 %.

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. 2, p. 246-7

Cat.No.	Size	EUR
28338.01	5 mg	27,00
28338.02	25 mg	90,00

■ Maleic acid analytical grade

C₄H₄O₄ ♦ M_r 116.07 ♦ CAS [110-16-7]

WARNING

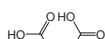
H302-H315-H317-H319-H335 ♦ EG-Index 607-095-00-3 ♦

GGVSE/ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦ EINECS 203-742-5

♦ WGK 1L ♦ HS 29171990

Assay (titr.) 99.0 - 101.0 %

Cat.No.	Size	EUR
28337.02	500 g	22,00



■ D-Maltose research grade

(Maltobiose; 4-O-α-D-Glucopyranosyl-D-glucopyranose)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.32 ♦ CAS [6363-53-7]

EINECS 200-716-5 ♦ WGK 1 ♦ HS 17029010

Assay (HPLC)

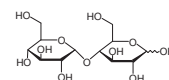
min. 95.0 %

[α]_D 20 °C/D (c=5 in water)

+137 ± 2 °

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size	EUR
28390.01	50 g	16,00
28390.02	250 g	32,00

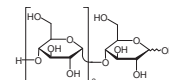
■ Maltotriose pure

C₁₈H₃₂O₁₆ ♦ M_r 504.44 ♦ CAS [1109-28-0]

EINECS 214-174-2 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC)

min. 95.0 %



Cat.No.	Size	EUR
28395.01	250 mg	27,00
28395.02	1 g	95,00

■ Manganese (II) chloride·4H₂O analytical grade

MnCl₂·4H₂O ♦ M_r 197.91 ♦ CAS [13446-34-9]

WARNING

H302-H412 ♦ EINECS 231-869-6 ♦ WGK 1L ♦ HS 28273985

Assay

min. 99 %

Cat.No.	Size	EUR
28403.01	100 g	25,00

■ D-Mannitol analytical grade

C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [69-65-8]

EINECS 200-711-8 ♦ WGK 1 ♦ HS 29054300

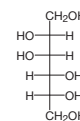
Ph. Eur.

Assay (HPLC)

98.0 - 102.0 %

Reducing sugars

max. 0.2 %



Cat.No.	Size	EUR
28410.02	250 g	18,00
28410.03	1 kg	45,00

■ D-Mannose research grade

(Carubinose; Seminose)

C₆H₁₂O₆ ♦ M_r 180.2 ♦ CAS [3458-28-4]

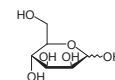
HS 29400000

Assay (HPLC)

min. 99.7 %

MP

128 - 134 °C



Cat.No.	Size	EUR
28460.01	10 g	21,00
28460.02	50 g	55,00

■ MEMBRA-CEL® Dialysis Membranes

see Chapter Dialysis, page 158

■ Melittin

M_r 2847 ♦ CAS [37231-28-0]

WARNING

H302-H312 ♦ EINECS 253-417-7 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

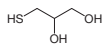
Gly-Ile-Gly-Ala-Val-Leu-Lys-Val-Leu-Thr-Thr-Gly-Leu-Pro-Ala-Leu-Ile- Ser-Trp-Ile-Lys-Arg-Lys-Arg-Gln-Gln-NH₂.

From bee venom. Purified by chromatography. Highly sensitive substrate for detection of chymotrypsin.

Cat.No.	Size	EUR
51560.01	5 mg	59,00
51560.02	50 mg	257,00

3-Mercapto-1,2-propanediol

(Thioglycerol)

 $C_3H_6O_2S$ ♦ M_r 108.16 ♦ CAS [96-27-5]

DANGER

H302-H311-H315-H319-H332-H335 ♦ GGVSE/ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810 ♦ EINECS 202-495-0 ♦ WGK 3L ♦ HS 29309099

Filled under argon.

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
28637.01	50 ml	85,00

2-Mercaptoethanol electrophoresis grade

(Monothioethylene glycol)

 C_2H_6OS ♦ M_r 78.13 ♦ CAS [60-24-2]

DANGER

GGVSE/ADR 6.1 II UN2966 ♦ IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. Tested for use in sample buffers for SDS-PAGE.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
28626.01	50 ml	17,00
28626.02	500 ml	53,00

2-Mercaptoethanol

(Monothioethylene glycol)

 C_2H_6OS ♦ M_r 78.13 ♦ CAS [60-24-2]

DANGER

H301-H310-H315-H317-H318-H331-H373-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
28625.01	50 ml	12,00
28625.02	500 ml	45,00

2-Mercaptoethanol molecular biology grade

(Monothioethylene glycol)

 C_2H_6OS ♦ M_r 78.13 ♦ CAS [60-24-2]

DANGER

H301-H310-H315-H317-H318-H331-H373-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
39563.01	50 ml	17,00
39563.02	500 ml	53,00

Merthiolate

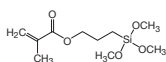
see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 44, 148, 297, 352

MES

see 29834 Morpholinoethane sulfonic acid, page 68, 248, 321, 356, 366

3-Methacryloxypropyltrimethoxysilane (Bind-Silane)

(Polyfix 1000)

 $C_{10}H_{20}O_5Si$ ♦ M_r 248.4 ♦ CAS [2530-85-0]

WARNING

H315-H319-H335 ♦ EINECS 219-785-8 ♦ WGK 1 ♦ HS 29310099

Storage temperature +2 °C to +8 °C

Assay (GC) 98.0 - 100.0 %

Cat.No.	Size	EUR
28739.01	100 ml	64,00

Methanol analytical grade

 CH_4O ♦ M_r 32.04 ♦ CAS [67-56-1]

DANGER

H225-H301-H311-H331-H370 ♦ EG-

Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦

IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Assay (GC) min. 99.8 %

Density (20 °C) 0.7915

Water max. 1000 ppm

Acidity max. 10 ppm

Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

Methanol for HPLC

 CH_4O ♦ M_r 32.0 ♦ CAS [67-56-1] H_3C-OH 

DANGER

H225-H301-H311-H331-H370 ♦ MAK/TRK 200

ml/m³; 270 mg/m³ ♦ EG-Index 603-001-00-X ♦

GGVSE/ADR 3 II UN1230 ♦ IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1L ♦ HS 29051100

Assay min. 99.8 % (GC)

Density (20 °C) 0.7910 - 0.7920

Boiling point 64.5 - 65.0 °C

Refractive Index 1.3310

Maximum Impurity Levels:

Water max. 0.05 %

Acidity max. 0.001 %

Residue on evaporation max. 0.0005 %

Minimum Transmission Levels

1 cm cell compared against HPLC-water

210 nm ≥ 25.0 %

230 nm ≥ 70.0 %

240 nm ≥ 85.0 %

260 nm ≥ 98.0 %

Cat.No.	Size	EUR
45630.01	2,5 L	50,00

L-Methionine research grade

(Met; L-2-Amino-4-(methylthio)butyric acid)

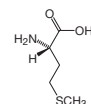
 $C_5H_{11}NO_2S$ ♦ M_r 149.21 ♦ CAS [63-68-3]

EINECS 200-562-9 ♦ WGK 1L ♦ HS 29304010

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm

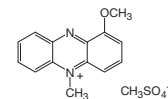


Cat.No.	Size	EUR
28821.01	25 g	16,00
28821.02	100 g	32,00
28821.03	1 kg	195,00

1-Methoxyphenazine-methosulfate research grade

(1-Methoxy-PMS; 1-Methoxy-5-

methylphenazinium-methyl sulfate)

 $C_{14}H_{13}N_2O^+CH_3SO_4^-$ ♦ M_r 336.4 ♦ CAS [65162-13-2]

WARNING

H302-H315-H319-H335 ♦ EINECS 265-579-6 ♦ WGK 1 ♦

HS 29339980

Storage temperature +2 °C to +8 °C

Electron mediator between NAD(P)H and tetrazolium dyes in the assay and activity staining of enzymes of diagnostic importance, e.g. LDH; photochemically stable substitute for PMS.

Assay (UV) min. 98.0 %

References:

1. Nakamura, S. et al. (1980) Clin. Chim. Acta **101**, 321-6

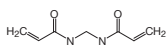
Cat.No.	Size	EUR
28966.01	50 mg	75,00
28966.02	250 mg	295,00

Methyl Violet 10B

see 27335 Crystal Violet, page 32, 370

N,N'-Methylene bisacrylamide 2X analytical grade

(Bis(acrylamido)methane)
 $C_7H_{10}N_2O_2$ ♦ M_r 154.2 ♦ CAS [110-26-9]



WARNING
 H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

Assay (titr.) min. 99.0 %
 A 290 nm/1 % in water max. 0.25
 pH 1 % in water 5.5 - 7.5

Cat.No.	Size	EUR
29195.04	10 g	13,00
29195.02	50 g	27,00
29195.03	250 g	93,00

N,N'-Methylene bisacrylamide 2X solution 2 % (w/v)

WGK 1 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

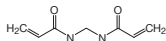
N,N'-Methylene bisacrylamide 2X solution. Solution contains 2 % (w/v) highly purified »Bis« in deionized water.

A 290 nm 1:1 in water ca. 0.25
 pH 1:1 in water 6.0 - 8.0

Cat.No.	Size	EUR
29197.01	1 L	39,00

N,N'-Methylene bisacrylamide 4X analytical grade

(Bis(acrylamido)methane)
 $C_7H_{10}N_2O_2$ ♦ M_r 154.2 ♦ CAS [110-26-9]



WARNING
 H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900
 Storage temperature +2 °C to +8 °C

Ultrapure electrophoresis grade, applicable for standard and high resolution electrophoresis techniques.

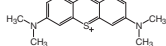
Assay (titr.) min. 99.0 %
 A 290 nm/1 % in water max. 0.25
 pH 1 % in water 5.5 - 7.5

Cat.No.	Size	EUR
29196.01	10 g	17,00
29196.02	50 g	36,00
29196.03	250 g	119,00

Methylene Blue

(Basic Blue 9; Methylene blue chloride; Methylthionine chloride)

$C_{16}H_{18}N_3S^+Cl^-$ ♦ M_r 319.86 ♦
 CAS [61-73-4]



WARNING
 H302 ♦ EINECS 200-515-2 ♦ WGK 2L ♦ HS 32049000

Standardized according to DIN 58981. Methylene blue is very sensitive to oxidation and usually contains demethylated products, called Azure A, B and C and thionine. For staining and detecting RNA in PAGE (as 0.1 % solution in water). Water soluble nuclear staining dye, mostly used for staining of blood cells.

λ_{max} . (0.0001 % in water) 665 ± 2 nm
 A 1 cm/ λ_{max} ./0.0001 % in water min. 0.17
 Water (KF) max. 15.0 %
 Sulfated ash max. 1.0 %

References:

- Herrini & Schmidt (1988) Rapid, reversible staining of Northern Blots prior to hybridization. *BioTechniques* 6, 196

Cat.No.	Size	EUR
29198.01	25 g	25,00
29198.02	100 g	75,00

Methylnadic anhydride pract.

(NMA; EPON hardener MNA; Methylnorbornene-2,3-dicarboxylic anhydride; Nadic Methyl anhydride)

$C_{10}H_{10}O_3$ ♦ M_r 178.19 ♦ CAS [25134-21-8]



DANGER
 H302-H315-H319-H334-H335 ♦ EG-Index 607-106-00-1
 ♦ GGVSE/ADR 8 III UN1760 ♦ IATA 8 III UN1760 ♦

EINECS 246-644-8 ♦ WGK 1 ♦ HS 29172000

Hardener component for polyester and epoxy resins, for example EPON embedding.

Viscosity 170 - 300 mPa·s at 25 °C
 d_{20}^4 1.20 - 1.25
 Refractive index 1.5040 - 1.5080

Cat.No.	Size	EUR
29452.01	100 ml	15,00
29452.02	250 ml	26,00
29452.03	1 L	87,00

Methylnorbornene-2,3-dicarboxylic anhydride

see 29452 Methylnadic anhydride, page 67, 361

N-Methylphenazinium methylsulfate

see 32030 Phenazine-methosulfate, page 79, 347

Methyltrioctyl ammonium chloride

see 37076 Trioctylmethylammonium chloride, page 114

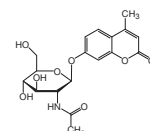
4-Methylumbelliferyl-N-acetyl-β-D-glucosaminide analytical grade

$C_{18}H_{21}NO_8$ ♦ M_r 379.4 ♦ CAS [37067-30-4]

EINECS 253-333-0 ♦ WGK 1 ♦ HS 29322090

Storage temperature -15 °C to -25 °C

Fluorogenic substrate for N-acetyl-β-D-glucosaminidase.



References:

- Leaback, D.H. & Walker, P-G. (1961) *Biochem. J.* **78**, 151-6
- Linko-Löppönen, S. & Mäkinen, M. (1985) *Anal. Biochem.* **148**, 50-3
- Bergmeyer, H.U. et al. (1983) *Methods of Enzymatic Analysis* (Bergmeyer, H.U. ed.) 3rd Ed., vol. **2**, 130-6

Cat.No.	Size	EUR
29662.01	50 mg	36,00
29662.02	250 mg	135,00

4-Methylumbelliferyl-β-D-glucuronide analytical grade

(MUG)

$C_{16}H_{16}O_9$ ♦ M_r 352.3 (as dry matter) ♦ CAS [6160-80-1]

EINECS 228-186-0 ♦ WGK 1 ♦ HS 29322090

Storage temperature -15 °C to -25 °C

Fluorogenic substrate for β-D-glucuronidase.

Assay (TLC) min. 99.0 %
 Water content (KF) max. 15.0 %

References:

- Mead, J.A.R. (1955) *Biochem. J.* **61**, 569-74

Cat.No.	Size	EUR
29667.01	50 mg	32,00
29667.02	250 mg	125,00

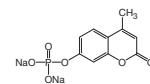
4-Methylumbelliferyl phosphate- Na_2 -salt research grade

$C_{10}H_{17}O_6P \cdot Na_2$ ♦ M_r 300.1 ♦ CAS [22919-26-2]

EINECS 245-325-0 ♦ WGK 1 ♦ HS 29322985

Storage temperature -15 °C to -25 °C

Fluorogenic substrate for alkaline and acid phosphatase (1). Substrate for surface membrane associated phosphodiesterase.



References:

- Guilbault, G.G. et al. (1968) *Anal. Lett.* **1**, 333-45

Cat.No.	Size	EUR
29670.01	100 mg	15,00
29670.02	500 mg	37,00

5-Methyluracil-2'-deoxyriboside

see 18600 2'-Deoxythymidine, page 34

Mineral oil molecular biology grade

(Paraffin oil, low viscosity)
CAS [8042-47-5]

EINECS 232-455-8 ♦ WGK 1L ♦ HS 27101985

DNase/RNase not detected. Suitable for overlaying aqueous reactions and centrifuge gradients.

Cat.No.	Size	EUR
39776.01	50 ml	19,50

M9-Minimal salts 5x, Powder 52.5 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and plasmid amplification in molecular biology

30 g/l Na_2HPO_4

15 g/l KH_2PO_4

5 g/l NH_4Cl

2.5 g/l NaCl

For making 1 L 5x concentrate dissolve 52.5 g in 1 L distilled water and sterilize by autoclaving. The 5x concentrate can be stored and diluted as needed to prepare 5 L of 1x M9 minimum salts.

References:

1. Sambrook, J., et al., Molecular Cloning : A Laboratory Manual, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48505.01	525 g	52,00

Mithramycin A pure

(Aureolic acid; Plicamycin)

$\text{C}_{52}\text{H}_{76}\text{O}_{24}$ ♦ M_r 1085.2 ♦ CAS [18378-89-7]



WARNING
H302-H332-H341 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

Similar to chromomycin A_3 in structure and mechanism of action, inhibits RNA synthesis. Forms complexes with DNA (1). Review on structure (2). Fluorescent antibiotic used for specific staining of DNA in flow cytometry and microscopy.

Assay (HPLC, TLC) min. 95.0 %

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Thiem, J. (1984) Nachr. Chem. Tech. Lab. **32**, 6-11
3. Sleiman, S.F. Et al. (2011) J. Neurosci. **31**, 6858-70

Cat.No.	Size	EUR
29803.01	2,5 mg	57,00
29803.02	10 mg	175,00

Mitomycin C lyophil. research grade

$\text{C}_{15}\text{H}_{18}\text{N}_4\text{O}_5$ ♦ M_r 334.3 ♦ CAS [50-07-7]



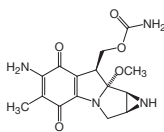
DANGER
H302-H351 ♦ EINECS 200-008-6 ♦
WGK 3L ♦ HS 29419000

Potent anti-tumor antibiotic isolated from *Streptomyces caespitosus*. Belongs to the group of aziridine-containing natural products. Causes intra- and interstrand crosslinks in DNA, which prevent dissociation of the strands, and thus inhibits replication and transcription of DNA. Each vial contains 48 mg sodium chloride as diluent.

References:

1. Tomasz, M. et al. (1987) Science **235**, 1204-8
2. de Klein, A. et al. (2000) Curr. Biol. **10**, 479-82
3. Martin, T.W. et al. (2002) Structure **10**, 933-42
4. Mai, Q. et al. (2007) Cell Res. **17**, 1008-19

Cat.No.	Size	EUR
29805.01	2 mg	49,00
29805.02	5 x 2 mg	210,00
29805.03	10 x 2 mg	415,00

**Mitomycin C, carrier-free** research grade

$\text{C}_{15}\text{H}_{18}\text{N}_4\text{O}_5$ ♦ M_r 334.3 ♦ CAS [50-07-7]



DANGER
H300-H351 ♦ GGVSE/ADR 6.1 II UN2811 ♦
IATA 6.1 II UN2811 ♦ EINECS 200-008-6 ♦ WGK 3L ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Potent anti-tumor antibiotic isolated from *Streptomyces caespitosus*. Belongs to the group of aziridine-containing natural products. Causes intra- and interstrand crosslinks in DNA, which prevent dissociation of the strands, and thus inhibits replication and transcription of DNA.

Assay (TLC, HPLC) min. 98.0%

References:

1. Tomasz, M. et al. (1987) Science **235**, 1204-8
2. de Klein, A. et al. (2000) Curr. Biol. **10**, 479-82
3. Martin, T.W. et al. (2002) Structure **10**, 933-42
4. Mai, Q. et al. (2007) Cell Res. **17**, 1008-19

Cat.No.	Size	EUR
29800.01	1 mg	30,00
29800.02	5 mg	65,00
29800.03	10 mg	110,00

Modified SPURR Embedding Kit

DANGER
H226-H302-H312-H314-H317-H332-H335 ♦
HS 39073000

Excellent embedding medium for tissues with dense structures like minerals and bones as well as for highly vacuolated plant cells and tissue with hard lignified cell walls. The original composition introduced by Spurr contained the highly toxic ERL-4206 (Vinylcyclohexene dioxide) which is replaced here by the much less toxic epoxy component ERL-4221 D.

One kit contains:

ERL-4221 D (cat. no. 21041) 250 g
NSA (cat. no. 30812) 650 g
D.E.R.® 736 (cat. no. 18247) 200 g
DMAE (cat. no. 20130) 25 g

D.E.R.® = trademark of Dow Chemical Company.

Cat.No.	Size	EUR
21050.01	1 kit	125,00

Molecular Weight Markers

see 39314 SERVA DNA Standard 1 Kbp DNA ladder lyophilized, page , 230

Molecular Weight Markers for Proteins

see 39215 SERVA Unstained SDS PAGE Protein Marker 6.5 - 200 KDa, liquid mix, page , 209

Montanox® 80

see 33100 Polysorbate 80 VG, page 82, 144, 323

MOPS

see 39777 Morpholinopropane sulfonic acid, page 69, 299

MOPS

see 42561 SERVA Tris-MOPS/SDS Electrophoresis Buffer (20x), page 97, 250

Morpholinoethane sulfonic acid analytical grade

(MES)

$\text{C}_6\text{H}_{13}\text{NO}_3\text{S}$ ♦ M_r 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

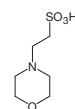
280 nm max. 0.1

pH 10 % in water 2.5 - 4.0

References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
2. Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29834.02	100 g	42,00
29834.04	500 g	165,00
29834.03	1 kg	305,00



■ Morpholinoethane sulfonic acid, monohydrate

analytical grade

(MES)

$C_6H_{13}NO_4S \cdot H_2O$ ♦ M_r 213.25 ♦ CAS [145224-94-8]

EINECS 224-632-3 ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/0.1 M in water

260 nm max. 0.05

280 nm max. 0.02

pH 1 % in water 2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29830.01	100 g	39,00
29830.02	250 g	72,00
29830.03	1 kg	195,00
29830.06	500 g	110,00

■ Morpholinopropane sulfonic acid analytical grade

(MOPS)

$C_7H_{15}NO_4S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

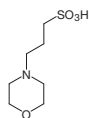
280 nm max. 0.08

pH 10 % in water 3.0 - 5.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00



■ Morpholinopropane sulfonic acid molecular biology grade

(MOPS)

$C_7H_{15}NO_4S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

DNase/RNase not detected. pKa 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in Wasser

260 nm max. 0.1

280 nm max. 0.08

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
39777.01	100 g	39,00

■ MS 222

see 12396 3-Aminobenzoic acid ethyl ester-methanesulfonate, page 11

■ mTOR Inhibitor

see 34145 Rapamycin from *Streptomyces hygroscopicus*, page 87, 282, 288

■ MTT

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium
·bromide, page 37, 320, 345, 370

■ MUG

see 29667 4-Methylumbelliferyl-β-D-glucuronide, page 67, 346

■ Murashige and Skoog minimal organic powder medium



DANGER

H271 ♦ GGVSE/ADR 5.1 III UN1479 ♦ IATA 5.1 III UN1479 ♦

HS 38210000

Storage temperature +2 °C to +8 °C

Murashige and Skoog plant salts **with** i-inositol and thiamine hydrochloride.

Without agar and **without** sucrose.

Supplements:

Agar (cat. no. 11396)

8 g/l

Sucrose (cat. no. 35579)

30 g/l

References:

- Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size	EUR
47515.04	10 L	24,00
47515.03	5 x 10 L	78,00

■ Murashige and Skoog Plant salts



DANGER

H271 ♦ GGVSE/ADR 5.1 III UN1479 ♦ IATA 5.1 III UN1479 ♦

HS 38210000

References:

- Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size	EUR
47516.04	10 L	21,00
47516.03	50 L	68,00

■ Mycostatin

see 29870 Nystatin min. 4 400 units/mg, page 74, 282

■ Myoglobin equine lyophil.

M_r ca. 17 800 ♦ CAS [100684-32-0]

EINECS 309-705-0 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

From skeletal muscle; consisting mainly of metmyoglobin (Fe³⁺ -form).

Assay (SDS-PAGE)

min. 95.0 %

pI

7.3

Iron content

ca. 0.3 %

References:

1. Structure:

- Takano, T. (1977) J. Mol. Biol. **171**, 31-59

Cat.No.	Size	EUR
29895.01	100 mg	35,00

■ NAD

see 30311 β-Nicotinamide adenine dinucleotide, page 72, 342

■ NAD⁺ oxidoreductase

see 27415 Lactate dehydrogenase from porcine heart min. 300 U/mg
protein, page 62, 335

■ NADH

see 30312 β-Nicotinamide adenine dinucleotide reduced- Na_2 -salt, page 72,
342

■ Nadic Methyl anhydride

see 29452 Methyl nadic anhydride, page 67, 361

■ NADPH

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced- Na_4 -
salt, page 72, 342

■ NANA

see 10465 N-Acetylneuraminic acid, page 3

■ Naphthalene Black B

see 12310 Amido Black 10 B, page 11, 240

Naphthol-AS-D-chloroacetate pure

$C_{20}H_{16}NO_3Cl$ ♦ M_r 353.8 ♦ CAS [35245-26-2]

EINECS 252-463-5 ♦ HS 29241900

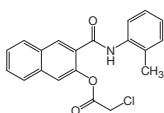
Storage temperature -15 °C to -25 °C

Histochemical substrate for esterase with improved stability.

Assay (HPLC) min. 97.0 %

References:

1. Burstone, M.S. (1957) Arch. Panthol. **63**, 164-7
2. Moloney, W. et al. (1960) J. Histochem. Cytochem. **8**, 200-7



Cat.No.	Size	EUR
29995.01	250 mg	21,00
29995.02	1 g	58,00

Naphthol-AS-MX-phosphate research grade

$C_{19}H_{18}NO_5P$ ♦ M_r 371.32 ♦ CAS [1596-56-1]

H315-H319-H335 ♦ EINECS 216-480-1 ♦

HS 29241900

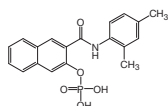
Storage temperature -15 °C to -25 °C

Selective substrate of alkaline phosphatase. Suitable dye for coupling. Fast Blue RR (1). Fast Red TR-salt (cat. no. 21317) (2).

Assay (HPLC) min. 99.0 %

References:

1. Makler, M.T. et al. (1981) Clin. Chem. **27**, 1609-13
2. Avrameas, S. (1976) Methods Enzymol. **44**, 709-17



Cat.No.	Size	EUR
30002.01	250 mg	29,00

Naphthol-AS-BI-phosphate research grade

(6-Bromo-2-phosphohydroxy-3-naphthoic acid *o*-anisidide)

$C_{18}H_{15}BrNO_5P$ ♦ M_r 452.2 ♦ CAS [1919-91-1]

WARNING

H315-H319-H335 ♦ EINECS 217-645-0 ♦

WGK 1 ♦ HS 29322985

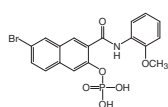
Storage temperature -15 °C to -25 °C

Histochemical substrate for phosphatase.

Purity (HPLC) min. 95.0 %

References:

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 914, Little, Brown & Co., Boston



Cat.No.	Size	EUR
29988.01	100 mg	17,00
29988.02	500 mg	58,00
29988.03	1 g	110,00
29988.04	5 g	495,00

1-Naphthyl acetate analytical grade

(α -Naphthyl acetate; Acetic acid α -naphthyl ester)

$C_{12}H_{10}O_2$ ♦ M_r 186.21 ♦ CAS [830-81-9]

EINECS 212-599-8 ♦ HS 29153900

Storage temperature +2 °C to +8 °C

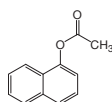
Substrate for esterases.

Assay (HPLC) min. 99.0 %

MP 42 - 46 °C

References:

1. Mastropaolo, W. & Yourno, J. (1981) Anal. Biochem. **115**, 188-93



Cat.No.	Size	EUR
30040.01	25 g	65,00

1-Naphthyl phosphate-Na-salt analytical grade

(Sodium-1-naphthyl hydrogen phosphate)

$C_{10}H_8O_4P \cdot Na \cdot H_2O$ ♦ M_r 264.15 ♦ CAS [81012-89-7]

EINECS 220-171-7 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

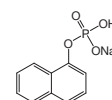
Specially purified product for assay of phosphatase activity.

Assay (titr.) min. 98.0 %

Free naphthol max. 0.01 %

References:

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 882, Little, Brown & Co., Boston



Cat.No.	Size	EUR
30130.02	1 g	15,00
30130.03	5 g	49,50

Native Anode Buffer for BN/CN (10x)

HS 38220000

Running buffer for the use as anode buffer in Blue or Clear Native PAGE.

Supplied as 10x concentrate. Contains 500 mM BisTris-HCl (pH 7.0).

Cat.No.	Size	EUR
42535.01	1 L	79,00

Native Cathode Buffer for BN/CN (10x)

HS 38220000

Running buffer for the use as cathode buffer in Blue or Clear Native PAGE.

Supplied as 10x concentrate. Contains 500 mM Tricine, 150 mM BisTris.

Cat.No.	Size	EUR
42536.01	500 ml	45,00

NBT

see 30550 Nitro Blue tetrazolium chloride, page 73, 222, 299, 347, 372

NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 μ m, format 88 mm x 88 mm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size	EUR
42516.01	10 sheets	82,00

NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 μ m, format 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size	EUR
71208.01	1 roll	385,00

NC 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 20 cm x 20 cm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

References:

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size	EUR
71223.01	5 sheets	175,00

NC 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

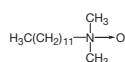
References:

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size	EUR
71224.01	1 roll	490,00

NDSB-201 research grade

(Non-Detergent Sulfobetaine 201; PPS; 3-(1-Pyridino)-1-propane sulfonate; 1-(3-Sulfopropyl)pyridinium betain)
C₈H₁₁NO₃S ♦ CAS [15471-17-7]



HS 29333999

A non-detergent sulfobetaine with zwitterionic properties. Easily removed by dialysis. Similar to zwitterionic detergent, but does not form micelles due to too short hydrophobic side chains. It prevents protein aggregation and facilitates the renaturation of chemically and thermally denatured proteins. Suitable for solubilization of proteins for proteomic applications.

Assay (titr.) min. 98.0 %

References:

1. Goldberg, M., E., et al., (1996), Folding & Design **1**, 21
2. Vuillard, L., et al., (1995), Biochem. J. **305**, 337

Cat.No.	Size	EUR
20762.01	50 g	18,00
20762.02	250 g	60,00

NEM

see 11331 N-Ethylmaleimide, page 44

Neodol PB

see 35796 Teepol 610, page 111

Neomycin-sulfate research grade

C₂₃H₄₆N₈O₁₃ · xH₂SO₄ ♦ M_r 614.7 (base) ♦ CAS [1405-10-3]

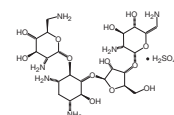


DANGER

H315-H317-H319-H334-H335-H361

d ♦ EINECS 215-773-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Ph.Eur. Min. 680 U/mg. Aminoglycoside antibiotic complex. Inhibits protein biosynthesis by binding to the 30S subunit of bacterial ribosomes. Causes misreading of mRNA.

References:

1. Cox, D. et al. (1977) in: Sammes, P.B. (ed.) Topics in antibiotics chemistry vol. **1**. Chichester: Horwood, pp. 1-90
2. Lancini, G. & Parenti, F. (1982) Antibiotics, Springer, New York

Cat.No.	Size	EUR
30250.01	10 g	11,00
30250.02	25 g	19,00
30250.03	100 g	45,00

NetFix™ for PAG Size: 265 mm x 125 mm

HS 38220000

NetFix™ is an inert, reinforcing fabric which serves as an ideal support for gel layers. The polyester fabric is activated to bind polyacrylamide.

NetFix is a registered trademark of SERVA.

Cat.No.	Size	EUR
42775.01	36 pieces	156,00

Neutral Protease NB from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦ EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Largely free of collagenolytic activity.

Metalloprotease suitable for tissue dissociation applications. For cell

isolation Neutral Protease NB is used in combination with purified

Collagenase NB 1 Premium Grade (cat. no. 17455) as well as

Collagenase NB 4 Standard Grade (cat. no. 17454) or

Collagenase NB 8 Broad Range (cat. no. 17456).

For research use only. If cells are intended for transplantation into humans,

Neutral Protease NB GMP Grade (cat. no. 30303) is recommended.

Unit definition: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30301.11	50 DMC-U	114,00
30301.12	100 DMC-U	165,00

Become a SERVA Online-Shopper!
Go to www.serva.de for ordering
24 hours per day, 7 days a week.

Neutral Protease NB GMP Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Vial contains not less than 100 DMC U of neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Largely free of collagenolytic activity.

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB GMP Grade is used in combination with purified Collagenase NB 1 GMP Grade (cat. no. 17452) or Collagenase NB 6 GMP Grade (cat. no. 17458) for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30303.01	≥ 100 DMC-U	inquire

Neutral Protease NB High Active Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains highly active, chromatographically purified neutral protease from *Clostridium histolyticum*.

Neutral protease activity (DMC): ≥ 5.00 U/mg.

Largely free of collagenolytic activity.

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB High Active Grade is used in combination with highly purified Collagenase NB 1 Premium Grade (cat. no. 17455), Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

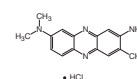
References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30302.02	80 DMC-U	175,00

Neutral Red pure

(Basic Red 5; Toluylene Red; 3-Amino-7-dimethylamino-2-methylphenazinium-chloride)
C₁₅H₁₇N₄Cl ♦ M_r 288.8 ♦ CAS [553-24-2]



EINECS 209-035-8 ♦ WGK 2L ♦ HS 32041300

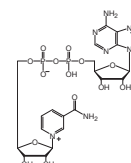
Indicator pH 6.8 - 8.0. For use in histology and supravital staining.

Water (KF) max. 15.0 %
λ_{max} 523 nm - 533 nm
A 1 cm/0.001 % in water
528 nm min. 0.5
TLC homogeneous
ε528 nm/water min. 14 440

Cat.No.	Size	EUR
30305.01	25 g	48,00

β-Nicotinamide adenine dinucleotide analytical grade

(NAD; DPN)
C₂₁H₂₇N₇O₁₄P₂ ♦ M_r 663.43 ♦ CAS [53-84-9]



EINECS 200-184-4 ♦ WGK 1 ♦ HS 29349990

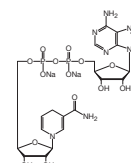
Storage temperature +2 °C to +8 °C

Assay (enzym.) min. 97.5 %
Assay from εNAD 260 nm, pH 7 min. 98.0 %
Water content (KF) max. 3.5 %

Cat.No.	Size	EUR
30311.02	1 g	23,00
30311.03	5 g	89,00
30311.04	25 g	385,00

β-Nicotinamide adenine dinucleotide reduced-Na₂-salt research grade

(NADH; DPNH)
C₂₁H₂₇N₇O₁₄P₂Na₂ ♦ M_r 709.4 ♦ CAS [606-68-8]



EINECS 210-123-3 ♦ WGK 1 ♦ HS 29349990

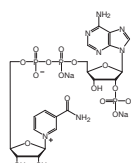
Storage temperature -15 °C to -25 °C

Assay (NADH-Na₂ enzymatic) min. 98.0 %
Assay (εNADH 260 nm) min. 85.0 %
Water (KF) max. 6.0 %

Cat.No.	Size	EUR
30312.01	250 mg	26,00
30312.02	1 g	69,00
30312.03	5 g	295,00

β-Nicotinamide adenine dinucleotide phosphate-Na₂-salt research grade

(NADP; TPNH)
C₂₁H₂₆N₇O₁₇P₃Na₂ ♦ M_r 787.4 ♦ CAS [24292-60-2]



EINECS 246-129-8 ♦ WGK 1 ♦ HS 29349990

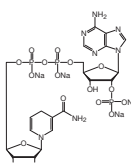
Storage temperature -15 °C to -25 °C

Assay (enzymatic) min. 97.0 %
Water (KF) max. 6.0 %

Cat.No.	Size	EUR
30315.02	100 mg	31,00
30315.03	250 mg	59,00
30315.04	1 g	195,00
30315.05	5 g	795,00

β-Nicotinamide adenine dinucleotide phosphate reduced-Na₄-salt analytical grade

(NADPH; TPNH)
C₂₁H₂₆N₇O₁₇P₃Na₄ ♦ M_r 833.4 ♦ CAS [2646-71-1]



EINECS 220-163-3 ♦ WGK 1 ♦ HS 29349990

Storage temperature -15 °C to -25 °C

Assay (anhydrous) from εNADPH 260 nm (ε = 15 000) min. 96.0 %
Assay of NADP-Na₄ (enzymatic, 340 nm) min. 97.0 %
Assay (HPLC) min. 95.0 %
Water (KF) max. 6.0 %

Cat.No.	Size	EUR
30316.01	25 mg	30,00
30316.02	100 mg	79,00
30316.03	500 mg	320,00

Collagenases:

see special chapter at p. 269

Ninhydrin analytical grade

(2,2-Dihydroxy-1,3-indanedione)
C₉H₆O₄ ♦ M_r 178.2 ♦ CAS [485-47-2]

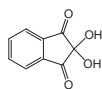


WARNING
H302-H315-H319-H335 ♦ EINECS 207-618-1 ♦
WGK 2 ♦ HS 29144090

Assay (titr.) min. 99.0 %

References:

1. Schönberg, A. & Singer, E. (1978) *Tetrahedron* **34**, 1285-1300



Cat.No.	Size	EUR
30410.01	25 g	28,00
30410.02	100 g	82,00

Nitro Blue tetrazolium chloride analytical grade

(NBT; Nitro BT; Nitrotetrazolium Blue chloride;
Ditetrazolium dye)



C₄₀H₃₀Cl₂N₁₀O₆ ♦ M_r 817.7 ♦ CAS [298-83-9]
WARNING
H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦
HS 29339980

Storage temperature +2 °C to +8 °C

A ditetrazolium compound for demonstrating succinic dehydrogenase activity (1). Glucose-6-phosphate dehydrogenase (2). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

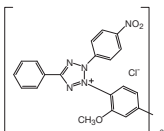
Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

Purity min. 98.0 %

References:

- Nachlas, M.M. et al. (1957) *J. Histochem. Cytochem.* **5**, 420-36
- Negi, D.S. & Stephens, R.J. (1977) *J. Histochem. Cytochem.* **25**, 149-54
- Auscher, C. & Amory, N. (1976) *Biomedicine* **5**, 37-8



Cat.No.	Size	EUR
30550.01	250 mg	23,00
30550.02	1 g	64,00
30550.03	5 g	263,00

Nitro BT

see 30550 Nitro Blue tetrazolium chloride, page 73, 222, 299, 347, 372

2-Nitrophenyl-β-D-galactopyranoside research grade

(ONPG)
C₁₂H₁₅NO₈ ♦ M_r 301.3 ♦ CAS [369-07-3]

EINECS 206-716-1 ♦ WGK 1 ♦ HS 29389090

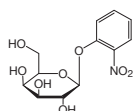
Storage temperature +2 °C to +8 °C

Substrate for β-D-galactosidase.

Purity (HPLC) > 99.0 %
Free nitrophenol max. 500 ppm

References:

- Levy, G.A. & Conchie, J. (1966) *Methods Enzymol.* **8**, 571-84
- Naider, F. et al. (1972) *Biochemistry* **11**, 3202-7



Cat.No.	Size	EUR
30710.01	1 g	17,00
30710.02	5 g	36,00
30710.03	25 g	144,00

4-Nitrophenyl-β-D-glucuronide research grade

C₁₂H₁₃NO₉ ♦ M_r 315.2 ♦ CAS [10344-94-2]

EINECS 233-753-0 ♦ WGK 1 ♦ HS 29389090

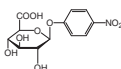
Storage temperature +2 °C to +8 °C

Substrate for β-D-glucuronidase.

Assay (HPLC) min. 99.0 %

References:

- Nimmo-Smith, R.H. (1961) *Biochim. Biophys. Acta* **50**, 166-9



Cat.No.	Size	EUR
30725.02	1 g	82,00

4-Nitrophenyl phosphate-Na₂-salt analytical grade

(4-NPP)

C₆H₅NO₈P·Na₂·6H₂O ♦ M_r 371.1 ♦ CAS [4264-83-9]

EINECS 224-246-5 ♦ WGK 1 ♦ HS 29199000

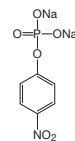
Storage temperature -15 °C to -25 °C

Filled under nitrogen. High quality substrate for alkaline and acid phosphatase (1).

Assay (from HPLC) min. 99.0 %
Water (KF) 28.5 - 30.0 %
free p-Nitrophenol max. 0.01 %

References:

- Lowry, O.H. (1957) *Methods Enzymol.* **4**, 371-2
- Bowers, G. et al. (1981) *Clin. Chem.* **27**, 135-43



Cat.No.	Size	EUR
30770.04	5 g	17,00
30770.02	25 g	55,00
30770.03	100 g	168,00

NMA

see 29452 Methylsuccinic anhydride, page 67, 361

Non-Detergent Sulfobetaine 201

see 20762 NDSB-201, page 71, 144, 248

Nonenylsuccinic anhydride pure

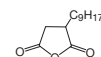
(NSA; ERL-4206 hardener)

C₁₃H₂₀O₃ ♦ M_r 224.3 ♦ CAS [28928-97-4]



WARNING
H315-H319-H335 ♦ EINECS 242-317-8 ♦ WGK 1 ♦ HS 29171990

Especially purified for electron microscopy. Hardener component for SPURR embedding.



Cat.No.	Size	EUR
30812.01	250 ml	29,00
30812.02	1 L	84,00

Norit® A pract.

(Activated charcoal)

CAS [64365-11-3]

HS 38021000

Activated charcoal from peat. Acid washed.

Norit = registered trademark of Norit B.V.

Cat.No.	Size	EUR
30890.01	100 g	15,00
30890.02	1 kg	56,00

Novobiocin-Na-salt research grade

C₃₁H₃₅N₂O₁₁·Na ♦ M_r 634.6 ♦ CAS [1476-53-5]



WARNING
H317-H319 ♦ EINECS 216-023-6 ♦ WGK 1 ♦
HS 29419000

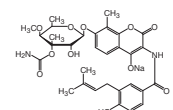
Storage temperature +2 °C to +8 °C

Coumarin-glycoside antibiotic. Inhibitor of bacterial DNA gyrase (1). Mechanism of action (2). Antagonist of heat shock protein 90 (Hsp90) (3,4,5).

Assay (HPLC) min. 90.0 %
[α]_D 24 °C/D (c=2.5 in water) -34.0 ° to -38.0 °
MP 215 - 220 °C (dec.)

References:

- Cozzarelli, N.R. (1980) *Science* **207**, 953-60
- Staudenbauer, W.L. (1975) *J. Mol. Biol.* **96**, 201-5
- Marcu, M.G. et al. (2000) *J. Natl. Cancer Inst.* **92**, 242-8
- Marcu, M.G. et al. (2000) *J. Biol. Chem.* **275**, 37181-6
- Sreedhar, A.S. et al. (2003) *J. Biol. Chem.* **278**, 35231-40



Cat.No.	Size	EUR
30995.01	1 g	39,00

NSA

see 30812 Nonenylsuccinic anhydride, page 73, 361

dNTP PCR Mix, solution 10 mM molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

Ready to use dNTP mixture for the Tth DNA polymerase and Taq DNA polymerase.

Mixture of dATP, dCTP, dGTP, dTTP, 10 mM of each, free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc. Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions.

Every lot is tested in a 30 kb PCR and real-time PCR reaction.

Purity > 98.0 %
pH 8.5 ± 0.1

Cat.No.	Size	EUR
39712.01	0,2 ml	39,00
39712.02	5 x 0,2 ml	125,00

dNTPs Set, solution 100 mM molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

Set of 100 mM solutions of each dATP, dCTP, dGTP, dTTP.

Free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc.

Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions. Every lot is tested in a 30 kb PCR and real-time PCR reaction.

0.25 ml correspond to 25 µmol.

Purity > 98.0 %
pH 8.5 ± 0.1

Cat.No.	Size	EUR
39705.01	4 x 250 µl	125,00
39705.02	4 x 1 ml	365,00

Nycodenz®, 60 % (w/v) solution in water

(Nycoprep® Universal)

C₁₉H₂₆I₃N₃O₉ ♦ M_r 821.1

HS 38220000

Storage temperature +2 °C to +8 °C

Non-ionic density gradient medium, similar to the former Metrizamide but less toxic. Mammalian cells and viruses isolated in Nycodenz® gradients potentially retain better functional integrity than in Metrizamide gradients. Nycodenz® is suitable for the isolation of a wide range of different cell types, viruses, subcellular organelles and other membrane compartments. Gradient preparation and resolution of cellular organelles are largely similar with both media. In contrast to Metrizamide, solutions of Nycodenz® can be sterilized by autoclaving.

Density (20 °C) 1.310 ± 0.002 g/ml
Osmolarity 580 ± 10 mOsm
Refractive index (20 °C) 1.4273 ± 0.0003

Nycodenz + Nycoprep = registered trademarks of Axis-Shield, Norway.

References:

1. Johne, R. & Muller, H. (2004) J. Virol. **78**, 930-7
2. Whiteley, A.S. et al. (2003) J. Microbiol. Meth. **54**, 257-67
3. Masuya, M. et al. (2003) Blood **101**, 2215-18
4. Schumacher, M.M. et al. (2002) J. Biol. Chem. **277**, 51033-42
5. Jadot, M. et al. (2001) Eur. J. Biochemistry **268**, 1392-99
6. Miller, K.E. & Sheetz, M.P. (2000) J. Biol. Chem. **275**, 2598-2606
7. Wischmann, B. et al. (1999) Plant. Physiol. **119**, 455-62

Cat.No.	Size	EUR
31000.01	50 ml	110,00

Nycoprep® Universal

see 31000 Nycodenz®, 60 % (w/v) solution in water, page 74, 322

Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 20 cm x 20 cm

HS 39219090

Nylon-Bind Membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size	EUR
42570.01	10 sheets	195,00

Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 30 cm x 3 m

HS 39219090

Nylon-Bind Membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size	EUR
42569.01	1 roll	310,00

Nystatin min. 4 400 units/mg research grade

(Fungicidin; Mycostatin)

C₄₇H₇₅NO₁₇ · 2H₂O ♦ M_r 926.13 ♦ CAS [1400-61-9]

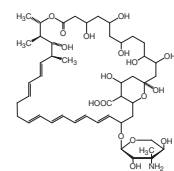
EINECS 215-749-0 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. Polyene macrolide antibiotic isolated from *Streptomyces noursei*. Used in animal and plant cell cultures against fungi and yeasts. Forms complexes with ergosterol in the fungal cell membrane resulting in the formation of pores and loss of ions and small molecules.

References:

1. Chong, C.N. et al. (1970) Tetrahedron Lett. **59**, 5145-8
2. Coutinho, A. et al. (2004). Biophys. J. **87**, 3264-76
3. Leifert, C. et al. (1991) J. Microbiol. Biotechnol. **7**, 452-69
4. Constabel, F. a. Shyluk, J.P. (1994): Plant Cell and Tissue Culture, eds. I.K. Vasil a. T.A. Thorpe; pp 3-15. Springer Netherlands
5. Banu, K.S. et al. (2001) Endocrine Pathol. **12**, 315-27
6. Wang, A. et al. (2005) Appl. Environ. Microbiol. **71**, 8397-401
7. Funkenstein, B. et al. (2006) Tissue and Cell **38**, 399-415



Cat.No.	Size	EUR
29870.01	1 g	20,00
29870.02	10 g	55,00

Octyl-POE

see 31060 n-Octylpolyoxyethylene, page 74, 144

Octyl-β-D-glucopyranoside research grade

(OGD; n-Octyl glucoside)

C₁₄H₂₈O₆ ♦ M_r 292.4 ♦ CAS [29836-26-8]

EINECS 249-887-8 ♦ HS 29389090

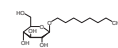
Storage temperature +2 °C to +8 °C

Non-ionic detergent. Especially suitable for the isolation and stabilization of membrane-bound enzymes, whereby in comparison to detergents used to date (Triton X-100 among others) a markedly higher yield is obtained. Easily removed by dialysis.

Assay (HPLC) min. 98.0 %
[α] 20°C/D (c=1 in methanol). -28.0 ° to -32.0 °

References:

1. Baron, C. & Thompson, T.E. (1975) Biochim. Biophys. Acta **382**, 276-85
2. Stubbs, G.W. & Litman, B.J. (1978) Biochemistry **17**, 215-9
3. Maloney, P.C. & Ambudkar, S.V. (1989) Arch. Biochem. Biophys. **269**, 1-10
4. Krah, D.L. (1989) Virology **172**, 386-90
5. Walker, N. et al. (1990) J. Cryst. Growth **100**, 168-70



Cat.No.	Size	EUR
31055.01	5 g	170,00
31055.02	250 mg	25,00
31055.03	1 g	43,00

n-Octylpolyoxyethylene research grade

(Octyl-POE)

CH₃(CH₂)₇(OCH₂CH₂)_nOH (n = 2 - 9)

HS 29389090

Storage temperature +2 °C to +8 °C

CMC: 6.6 mM. Non-ionic N-alkylpolyoxyethylene surfactant. Mixture with n = 2 - 9 ethyleneglycol units. Especially suitable for the solubilization and structural characterization of integral membrane proteins.

References:

1. Rosenbusch, J.P. et al. (1981) in: Protides of the Biological Fluids. Proceedings of the 29th Colloquium (Peeters, H., ed.) p. 171-4
2. Zulauf, M. (1985) in: Physics of Amphiphiles, Micelles, Vesicles, and Microemulsions (Degiorgio, V. & Corti, M., eds.) p. 663-73
3. Garavito, M. & Rosenbusch, J.P. (1986) in Methods Enzymol. **125**, 309-28

Cat.No.	Size	EUR
31060.01	1 g	30,00
31060.02	10 g	215,00

■ ONPG

see 30710 2-Nitrophenyl-β-D-galactopyranoside, page 73, 347

■ Oramix L30

see 27570 N-Lauroylsarcosine-Na-salt, page 62

■ Orthophosphoric-monoester phosphohydrolase (alkaline optimum)

see 32471 Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/μl), page 11, 328

■ Osmic acid

see 31253 Osmium tetroxide, page 75, 364, 368

■ Osmium (VIII) oxide

see 31253 Osmium tetroxide, page 75, 364, 368

■ Osmium tetroxide for electron microscopy

(Osmium (VIII) oxide; Osmic acid)

OsO₄ ♦ M_r 254.2 ♦ CAS [20816-12-0]



DANGER

H300-H310-H314-H330 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ GGVSE/

ADR 6.1 I UN2471 ♦ IATA 6.1 I UN2471 ♦ EINECS 244-058-7 ♦ WGK 3 ♦ HS 28259085

Assay min. 99.9 %

Cat.No.	Size	EUR
31251.01	100 mg	53,00
31251.03	1 g	125,00

■ Osmium tetroxide 4 % solution for electron microscopy

(Osmic acid; Osmium (VIII) oxide)

OsO₄ ♦ M_r 254.2



DANGER

H302-H312-H315-H318-H332-H335 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ WGK 3 ♦

HS 28259085

40 mg/ml in water

Cat.No.	Size	EUR
31253.01	2 ml	32,00
31253.02	10 x 2 ml	225,00
31253.03	10 ml	120,00
31253.04	5 x 10 ml	475,00

■ Ovalbumin

see 11841 Albumin egg, page 8

■ Over Sulfated Chondroitin Sulfate (OSCS) Standard pure



DANGER

H301-H330 ♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦ HS 29389090

Storage temperature -15 °C to -25 °C *

Suitable for applications such as identification of OSCS impurities in unfractionated and fractionated heparins by CE, ¹H NMR spectroscopy and other analytical methods. Applicable to analytic method validation and system suitability test (SST). OSCS is highly purified (≥ 95 %) from impure heparin sodium.

Cat.No.	Size	EUR
31254.01	2 mg	43,00
31254.02	10 mg	119,00
31254.03	25 mg	269,00
31254.04	100 mg	995,00

■ 2-Oxetanone

see 33672 β-Propiolactone, page 84

■ Paclitaxel research grade

(Taxol®)

C₄₇H₅₁NO₁₄ ♦ M_r 853.9 ♦ CAS [33069-62-4]



WARNING

H341-H361ff ♦ HS 29399900

Storage temperature -15 °C to -25 °C

Diterpenoid isolated from the bark of the yew tree (*Taxus brevifolia*). Antitumor and antileukemic agent. Promotes the assembly of stable microtubules and inhibits the disassembly process of microtubules to tubulin. Inhibits DNA synthesis and stimulates the release of TNFα

Assay (HPLC, TLC) min. 97.0 %

Protect from light and moisture.

References:

1. Wani, M.C. et al. (1971) Am. Chem. Soc. **93**, 2325
2. Manfredi, J.J. a. Horwitz, S.B. (1984) Pharmacol. Ther. **25**, 83-125
3. Mitsunuchi, Y. et al. (2000) Cancer Res. **60**, 5390-4
4. Donaldson, K.L. et al. (1994) Int. J. Cancer **57**, 847
5. Gut, I. et al. (2000) Arch. Toxicol. **74**, 437-46
6. Downing, K.H. (2000) Annu. Rev. Cell Dev. Biol. **16**, 89-111

Cat.No.	Size	EUR
31360.01	5 mg	40,00
31360.02	10 mg	70,00
31360.03	50 mg	275,00

■ Pancreatin NB from porcine pancreas

CAS [8049-47-6]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦ WGK 1L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Pancreatin NB is derived from porcine pancreas of known origin. It is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: ≥ 80 000 Ph. Eur. U/g

Amylolytic activity: ≥ 60 000 Ph. Eur. U/g

Proteolytic activity: ≥ 3000 Ph. Eur. U/g

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.)

The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.)

The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31442.01	100 g	64,00
31442.02	250 g	142,00

Albumins:

see special chapter at p. 276

■ Pancreatin NB GMP Grade from porcine pancreas

CAS [8049-47-6]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦ WGK 1L ♦ HS 35079090

Pancreatin NB GMP Grade is derived from porcine pancreas of known origin. It meets the requirements of the European Pharmacopoeia monograph for pancreas powder and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). Pancreatin is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: $\geq 80\,000$ Ph. Eur. U/gAmylolytic activity: $\geq 60\,000$ Ph. Eur. U/gProteolytic activity: $\geq 3\,000$ Ph. Eur. U/gLoss on drying: $\leq 3.0\%$ Fat content: $\leq 3.0\%$

Microbiological examination:

Total aerobic microbial count (TAMC): $\leq 10^4$ CFU/gTotal yeast and mould count (TYMC): $\leq 10^2$ CFU/gAbsence of *Escherichia coli*: must complyAbsence of *Salmonella*: must comply

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.) The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.) The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31445.01	250 g	inquire

■ Pancreatopeptidase E

see 20929 Elastase from porcine pancreas min. 200 U/mg, page 41, 334

■ Paraffin oil, low viscosity

see 39776 Mineral oil, page 68, 299

■ Paraffin oil, low viscosity

see 14500 Bayol F, page 16, 199

■ Parafilm™

HS 39209990

Roll: width 50 cm (20"), length 15 m (50 ft). Supplied in sturdy cardboard container.

Parafilm = registered trademark of American Can Co.

Cat.No.	Size	EUR
90300.01	1 roll	40,00
90300.02	6 rolls	210,00
90300.03	12 rolls	395,00

■ Parafilm™

HS 39209990

Roll: width 10 cm (4"), length 38 m (125 ft). Supplied in dispenser box.

Parafilm = registered trademark of American Can Co.

Cat.No.	Size	EUR
90310.01	1 box	40,00
90310.02	6 boxes	210,00
90310.03	12 boxes	395,00

■ Paraformaldehyde pure

(Polyoxymethylene)

 $(\text{CH}_2\text{O})_n$ ♦ M_r (30.0)_n ♦ CAS [30525-89-4]

WARNING

H228-H302-H315-H317-H319-H332-H335-H351 ♦ GGVSE/ADR 4.1 III UN2213 ♦ IATA 4.1 III UN2213

♦ WGK 2L ♦ HS 29126000

Assay (titr.)

min. 95.0 %

Cat.No.	Size	EUR
31628.01	100 g	13,00
31628.02	500 g	28,00

■ Parafuchsin research grade

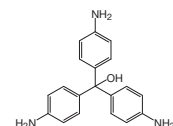
(Basic Red 9; Magenta O; Pararosanine)

C.I.42500 ♦ C₁₉H₁₈N₃⁺Cl⁻ ♦ M_r 323.82 ♦ CAS [569-61-9]

DANGER

H350 ♦ Carc. 1B ♦ EG-Index 611-031-00-X ♦

EINECS 209-321-2 ♦ WGK 3L ♦ HS 32041300



Homogeneous in TLC (1). Indicator pH 1.0 - 3.1.

Suitable for aldehyde fuchsin staining and Schiff's reagent. For staining elastic fibres (2). For formaldehyde determination (3).

 λ_{max} 0.003 %/l in EtOH:H₂O/1:1 543 - 549 nmA 1 cm/ λ_{max} 0.0003 % inEtOH:H₂O/1:1

min. 0.788

 ϵ λ_{max} 0.0003 % inEtOH:H₂O / 1:1

min. 85 000

Water (K.F.)

max. 10.0 %

References:

1. Nettleton, G.S. & Martin A.W. (1973) Stain Technol. **54**, 213-6
2. Mowry, R.W. (1980) Stain Technol. **55**, 91-103
3. Georgiou, P.E. et al. (1983) Anal. Chem. **55**, 571-4

Cat.No.	Size	EUR
31627.01	5 g	24,00
31627.02	25 g	98,00

■ Pararosanine

see 31627 Parafuchsin, page 76

■ PBS

see 47302 Buffer substance Dulbecco's, page 21, 319, 365

■ PDT disulfonate

see 21326 Ferrozine®, page 44

■ PEFABLOC® SC

([4-(2-Aminoethyl)benzenesulfonyl]fluoride-HCl)

C₈H₁₀NSO₂F·HCl ♦ M_r 239.7 ♦ CAS [30827-99-7]

HS 29214900

Storage temperature +2 °C to +8 °C

Protease inhibitor with major advantages over other inhibitors:

Excellent stability at neutral pH. Ready solubility in aqueous

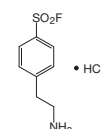
buffers; LD₅₀ (oral) 2800 mg/kg. Broad specificity for serine proteases.

Minimum effect on cell growth.

Purity (HPLC)

min. 95.0 %

Pefabloc = registered Trademark of Pentapharm. Ltd.



Cat.No.	Size	EUR
31682.01	100 mg	44,00
31682.02	500 mg	185,00

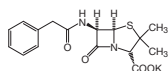
■ Penicillin G-K-salt research grade

(Benzylpenicillin potassium)

$C_{16}H_{17}N_2O_4S \cdot K$ ♦ M_r 372.5 ♦ CAS [113-98-4]

EINECS 204-038-0 ♦ WGK 1 ♦ HS 29411000

Storage temperature +2 °C to +8 °C



Ph. Eur. β -Lactam antibiotic. Inhibitor of bacterial cell wall synthesis. Binds to the active site of a transpeptidase which is involved in the synthesis of murein, a major component of the bacterial cell wall. Frequently used in cell culture media to prevent the growth of contaminating bacteria (2), often in combination with streptomycin (3-5).

Assay (HPLC) min. 96.0 %

References:

1. Keller, N.P. et al. (2005) Nature Reviews Microbiology **3**, 937-47
2. Wang, Z. et al. (2000) Anal. Chem. **72**, 2001-7
3. Haraguchi, N. et al. (2006) Stem Cells **24**, 506-13
4. Souza, G.R. Et al. (2006) PNAS **103**, 1215-20
5. Pedersen, I.M. Et al. (2007) Nature **449**, 919-22

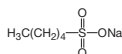
Cat.No.	Size	EUR
31749.04	25 g	22,00
31749.03	100 g	58,00

■ Pentanesulfonic acid-Na-salt research grade

$C_5H_{11}SO_3 \cdot Na \cdot H_2O$ ♦ M_r 192.2 ♦ CAS [22767-49-3]

EINECS 245-208-4 ♦ HS 29041000

Assay (titr.) min. 99.0 %



Cat.No.	Size	EUR
31812.02	25 g	81,00

■ Pepsin NB Technical Grade from porcine gastric mucosa granulate, vacuum dried

(Pepsin A)

EC 3.4.23.1 ♦ M_r ca. 35 000 ♦ CAS [9001-75-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-008-00-6 ♦

EINECS 232-629-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Pepsin NB Technical Grade is derived from porcine gastric mucosa. It contains sodium benzoate (≤ 0.46 % (w/w)). Pepsin is a protease with a broad specificity and cleaves preferably peptide bonds between hydrophobic and aromatic amino acids and is active in acid medium. Pepsin NB Technical Grade is suitable for applications such as production of F(ab')₂ fragments from antibodies.

Specification:

Proteinase activity: ≥ 0.5 Ph. Eur. U/mg

Unit definition: Proteinase activity (Ph. Eur.)

The activity of pepsin powder is determined by comparing the quantity of peptides, non-precipitable by trichloroacetic acid solution R and assayed using the phosphomolybdotungstic reagent R, which are released per minute from a substrate of haemoglobin solution R, with the quantity of such peptides released by pepsin powder BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31825.01	100 g	45,00

■ Pepsin porcine ca. 15 milliAnson units/mg 2xcryst. lyophil.

(Pepsin A)

EC 3.4.23.1 ♦ M_r ca. 36 000 ♦ CAS [9001-75-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-008-00-6 ♦

EINECS 232-629-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins. Pepsin preferentially hydrolyzes those peptide linkages which involve the amino group contributed by the aromatic amino acids phenylalanine, tyrosine and tryptophan.

Unit definition: 1 milliAnson-unit is equivalent to 1 μ mole of Folin-positive amino acids calculated as tyrosine, released from denatured hemoglobin per minute at 37 °C, pH 2.0.

Activity in other units: ca. 0.015 PU^{hb}/mg („Pepsin-Unit“ according to Anson (1, 2). Expressed in millimole tyrosine, therefore 1 PU^{hb} = 1000 milliAnson-units.)

References:

1. Anson, M.L. (1938) J. Gen. Physiol. **22**, 79-98
2. Ryle, A.P. (1984) Methods of Enzymatic Analysis, (Bergmeyer, H.U. ed.) 3rd Ed. vol. **5**, 223-38
3. Northrop, J.H. et al. (1948) Crystalline Enzymes 2nd ed., Columbia University Press, 305-8

Cat.No.	Size	EUR
31820.01	1 g	35,00
31820.02	5 g	137,00

■ Pepstatin A

(Isovaleryl-L-valyl-L-valyl-4-amino-3-hydroxy-6-methylheptanoyl-L-alanyl-4-amino-3-hydroxy-6-methylheptanoic acid; X-Val-Val-statyl-Ala-statin)

$C_{34}H_{63}N_5O_9$ ♦ M_r 685.9 ♦ CAS [26305-03-3]

EINECS 247-600-0 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Inhibitor of aspartic proteases, e.g. pepsin, renin, cathepsin D (1-3) and of retroviral proteases (4-7).

Assay (HPLC) min. 98.0 %

References:

1. Umezawa, H. (1976) Meth. Enzymol. **45**, 689-93
2. McCaffrey, G. & Jamieson, J.C. (1993) Comp. Biochem. Physiol. **104**, 91-4
3. Bailly, E. et al. (1991) Exp. Parasitol. **72**, 278-84
4. Baum, E.Z. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10023-7
5. Grinde, B. et al. (1989) AIDS Res. Hum. Retroviruses **5**, 269-74
6. von der Helm, K. et al. (1989) FEBS Lett. **247**, 349-52
7. Katoh, I. et al. (1987) Nature **329**, 654-6

Cat.No.	Size	EUR
52682.02	5 mg	18,00
52682.03	25 mg	65,00
52682.04	100 mg	205,00

■ Peptone acid hydrolysate from vegetable

HS 35040090

Peptone acid hydrolysate is prepared by acid hydrolysis of vegetable proteins and is suitable for use in culture media requiring an amino acid mixture. Its growth promotional characteristics match with casein acid hydrolysate.

It can be used for preparing antibiotic sensitivity test media, in media requiring quantitative addition of tryptophan and in vaccine preparation media as a source of high concentration of free amino acids.

Total nitrogen (TN) min. 6.0 %
 Amino nitrogen min. 3.0 %
 Loss on drying max. 5.0 %
 Residue on ignition max. 44 %
 pH (1 % solution) 5.5 – 7.5
 Sodium chloride max. 4.0 %

Cat.No.	Size	EUR
48668.01	250 g	65,00
48668.02	1 kg	210,00

Ion Exchange Media:
 see special chapter at p. 375

■ **Peptone from casein** enzymatic

HS 35040090

High quality source of peptides and amino acids produced by enzymatic digestion of casein. Refined hydrolysate that has been specially processed to increase solubility. Suitable as nutrient for laboratory media and industrial fermentation.

Total nitrogen (TN) min. 10.0 %
 Amino nitrogen (AN) min. 3.9 %
 pH (2 % solution) 6.5 - 7.5

Cat.No.	Size	EUR
48600.04	250 g	33,00
48600.02	1 kg	97,00

■ **Peptone from casein** pancreatic

HS 35040090

High quality source of peptides and amino acids produced by pancreatic digestion of casein. Suitable as nutrient for laboratory media and industrial fermentation and to support growth of fastidious microorganisms.

Total nitrogen (TN) min. 12.0 %
 Loss on drying max. 5.0 %
 Ash max. 15.0 %
 pH (1 % solution) 7.0 - 7.4
 Sodium chloride max. 5.0 %

Cat.No.	Size	EUR
48661.01	250 g	65,00
48661.02	1 kg	210,00

■ **Peptone PLUS from casein** enzymatic

HS 35040090

Manufactured by controlled enzymatic hydrolysis of casein. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 500 Dalton. For analytical microbiology and industrial fermentation.

Total nitrogen 12.5 - 13.5 %
 Amino nitrogen 3.0 - 4.0 %
 AN/TN x 100 22 - 33
 Solubility (5 % in water) complete
 pH (5 % solution) 6.5 - 7.5

Cat.No.	Size	EUR
48605.01	250 g	42,00
48605.02	1 kg	135,00

■ **Peptone from lactalbumin** pancreatic(Edamin S)
HS 35040090

Readily soluble pancreatic digest of lactalbumin recommended for production of Lactobacilli and other fermentations.

Total nitrogen 11.0 - 13.0 %
 Amino nitrogen 4.5 - 6.5 %
 Solubility (6 % in water) complete
 pH (6 % in water) ca. 6.7 - 7.7

Cat.No.	Size	EUR
48625.06	250 g	39,00
48625.02	1 kg	101,00
48625.03	5 kg	395,00

■ **Peptone from meat** enzymatic

HS 35040090

Prepared by enzymatic digestion of selected fresh lean meat obtained from healthy animals. Used in general purpose culture media for routine cultivation of a variety of microorganisms and as well in large scale cultivation of microorganisms used for antibiotic, enzyme and vitamin production.

Total nitrogen (TN) min. 11.5 %
 Amino nitrogen min. 3.0 %
 Loss on drying max. 5.0 %
 Ash max. 15.0 %
 pH (1 % solution) 6.0 - 7.0
 Sodium chloride max. 6.0 %

Cat.No.	Size	EUR
48663.01	250 g	65,00
48663.02	1 kg	210,00

■ **Peptone from meat** pancreatic

HS 35040090

Ph. Eur. Certificate of Suitability. Produced by controlled enzymatic hydrolysis of animal tissues. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 1000 Dalton. Recommended as source of organic nitrogen in media for analytical microbiology and industrial fermentation.

Total nitrogen 15.0 - 16.0 %
 Amino nitrogen 3.0 - 4.0 %
 AN/TN x 100 18 - 26
 Solubility (5 % in water) complete
 pH (5 % solution) 5.0 - 6.0

Cat.No.	Size	EUR
48619.01	250 g	40,00
48619.02	1 kg	120,00

■ **Peptone from soybean** enzymatic

HS 35040090

Produced by controlled enzymatic hydrolysis of soybean meal. Contains a mix of peptides and free amino acids. Peptide average molecular weight: ca. 500 Dalton. For bacteriology and industrial fermentation.

Total nitrogen 8.5 - 10.2 %
 Amino nitrogen 2.5 - 3.5 %
 AN/TN x 100 26 - 36
 Solubility (5 % in water) complete
 pH (5 % solution) 6.6 - 7.6

Cat.No.	Size	EUR
48640.02	250 g	43,00
48640.03	1 kg	130,00

■ **Peptone from vegetable III**

HS 35040090

Peptone from vegetable III is an enzymatic hydrolysate of specially selected vegetable proteins and is recommended for use in bacteriological media. It can successfully replace meat peptone like e.g. peptone from meat, pancreatic (cat. no. 48619).

It is recommended for use in general purpose culture media for routine cultivation of a variety of microorganisms. It is as well suitable for mass scale cultivation of microorganisms for antibiotics, enzymes, vitamins production or for other similar products of microbial origin.

Total nitrogen (TN) min. 10.0 %
 Amino nitrogen min. 3.5 %
 Loss on drying max. 4.5 %
 Residue on ignition max. 10.0 %
 pH (1 % solution) 6.3 - 7.3
 Sodium chloride max. 4.5 %

Cat.No.	Size	EUR
48666.01	250 g	65,00
48666.02	1 kg	210,00

Products for Cell Culture:
 see Special Chapter at p. 310

■ Peroxidase from horseradish min. 1000 U/mg lyophil.

(POD; HRP; Donor: hydrogen-peroxide oxidoreductase)
EC 1.11.1.7 ♦ M_r ca. 40 000 ♦ CAS [9003-99-0]



DANGER
H334 ♦ EINECS 232-668-6 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

For the determination of peroxide (1). Used as an indicator enzyme in reactions where peroxide is produced (2). For labelling antibodies in ELISA (3, 4). RZ (= A 403/A 275) = 3.0.

Unit definition: 1 U catalyzes the decomposition of 1 μmole hydrogen peroxide per minute at 25 °C, pH 7.0; reaction coupled with phenol-aminoantipyrine (5).

Activity in other units: min. 250 purpurogallin units/mg (1 purpurogallin unit catalyzes the oxidation of 1 mg pyrogallol to purpurogallin in 20 seconds at 20 °C and pH 6.0. The purpurogallin is extracted and determined spectrophotometrically at 420 nm (6). 1 mg purpurogallin requires 13.5 μmole peroxide, 1 purpurogallin unit corresponds to the decomposition of 12 μmoles peroxide at 25 °C.

References:

- Meiattini, F. (1985) Methods of Enzymatic Analysis, (Bergmeyer, H.U., ed.) 3rd Ed. vol. 7, p. 566-71
- Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. vol. 2, p. 267-8
- Johnson Jr., R.B. (1980) J. Immunoassay 1, 27-37
- Harlow & Lane (1988) Antibodies, Cold Spring Harbor Laboratory Press, p. 349
- Gallati, H. (1977) J. Clin. Chem. Clin. Biochem. 15, 699-703
- Polis, B.D. & Shmukler, H.W. (1963) J. Biol. Chem. 201, 457-500

Cat.No.	Size	EUR
31941.02	10 mg	31,00
31941.03	100 mg	220,00

■ PGM Anode Buffer

HS 38220000

Contains 0.60 g DL-Threonine. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size	EUR
36370.01	600 mg	23,00

■ PGM Cathode Buffer

HS 38220000

Contains 0.56 g L-Histidine Base. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size	EUR
24835.01	560 mg	22,50

■ 1,10-Phenanthroline analytical grade

(o-Phenanthroline)
C₁₂H₈N₂·H₂O ♦ M_r 198.2 ♦ CAS [5144-89-8]



DANGER
H301-H400-H410 ♦ EG-Index 613-092-00-8
♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦
EINECS 200-629-2 ♦ WGK 3 ♦ HS 29339980



For the determination of iron in heme compounds. Metalloprotease inhibitor.

Assay (Tit.) min. 99.0 %

References:

- Cameron, B.F. (1970) Anal. Biochem. 35, 515-7

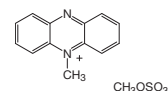
Cat.No.	Size	EUR
32010.01	5 g	20,00
32010.02	25 g	55,00

■ Phenazine-methosulfate pure

(PMS; N-Methylphenazinium methylsulfate)
C₁₃H₁₁N₂·CH₃SO₃ ♦ M_r 306.34 ♦ CAS [299-11-6]



WARNING
H315-H319-H335 ♦ EINECS 206-072-1 ♦
WGK 1 ♦ HS 29339980



Storage temperature +2 °C to +8 °C

Electron coupler, transfers electrons from NADH to tetrazolium salts, e.g. MTT, and thus makes NAD reductions visible.

Assay (titr.) min. 98.0 %

References:

- Faber, E. et al. (1958) J. Histochem. Cytochem. 6, 389
- Altman, F.P. Biochem. J. 125, 21P-22P

Cat.No.	Size	EUR
32030.01	1 g	16,00
32030.02	10 g	98,00

■ Phenol analytical grade

(Hydroxybenzene)
C₆H₆O ♦ M_r 94.11 ♦ CAS [108-95-2]



DANGER
H301-H311-H314-H331-H341-H373 ♦ Muta. 2
♦ MAK/TRK 7.8 mg/m³; 2 ml/m³ ♦ EG-
Index 604-001-00-2 ♦ GGVSE/ADR 6.1 II UN1671 ♦ IATA 6.1 II UN1671 ♦
EINECS 203-632-7 ♦ WGK 2L ♦ HS 29071100



USP, Ph.Eur. For separation of proteins during purification of nucleic acids.

Assay (titr.) 99.0 - 100.5 %

Cat.No.	Size	EUR
32046.02	500 g	45,00

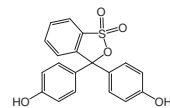
■ Phenol Red research grade

(Phenylsulfonphthalein)
C₁₉H₁₄O₅S ♦ M_r 354.4 ♦ CAS [143-74-8]

EINECS 205-609-7 ♦ WGK 2L ♦ HS 29349990

Indicator pH 6.5 - 8.0. Tested for use in tissue culture.

λmax. 0.0001 % in 0.01 M NaOH 558 - 562 nm



Cat.No.	Size	EUR
32095.01	5 g	17,00
32095.02	25 g	36,00

■ Phenolphthalein diphosphate-Na₄-salt research grade

C₂₀H₁₂O₁₀P₂·Na₄ ♦ M_r 566.20 ♦ CAS [68807-90-9]

EINECS 272-326-3 ♦ HS 29322985

Storage temperature -15 °C to -25 °C *

Substrate for phosphatase.

Assay (titr.) min. 95.0 %

References:

- Comfort, D. & Campbell, D.J. (1966) Clin. Chim. Acta 14, 263-9

Cat.No.	Size	EUR
32050.01	10 g	95,00

■ L-Phenylalanine cell culture grade

(Phe; L-2-Amino-3-phenylpropionic acid)
C₉H₁₁NO₂ ♦ M_r 165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
Endotoxin ≤ 6.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47213.01	100 g	33,00
47213.02	500 g	132,00

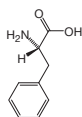
■ **L-Phenylalanine** research grade

(Phe; L-2-Amino-3-phenylpropionic acid)

 $C_9H_9NO_2$ ♦ M_r 165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
32191.01	25 g	18,00
32191.02	100 g	27,00
32191.03	1 kg	190,00

■ **Phenylmethylsulfonyl fluoride** research grade(PMSF; Benzyisulfonyl fluorid; α -Toluenesulfonyl fluoride) $C_7H_7FO_2S$ ♦ M_r 174.19 ♦ CAS [329-98-6]

DANGER

H301-H314 ♦ GGVSE/ADR 8 II UN2923

♦ IATA 8 II UN2923 ♦ EINECS 206-350-2 ♦ WGK 1 ♦

HS 29049095

Inhibits trypsin and chymotrypsin (1). Non-inhibitory to cholinesterase. Less toxic than diisopropylfluorophosphate (2). Inactivation of PMSF in buffer (3).

Assay (GC) min. 99.0 %
MP 90 - 94 °C

References:

1. Prouty, W.F. & Goldberg, A.L. (1972) J. Biol. Chem. **247**, 3341-52
2. Fahrney, D.E. & Gold, A.M. (1963) J. Am. Chem. Soc. **85**, 997-1009
3. James, G.T. (1978) Anal. Biochem. **86**, 574-9

Cat.No.	Size	EUR
32395.02	5 g	21,00
32395.03	25 g	69,00
32395.04	100 g	198,00

■ **Phorbol (12-myristoyl-13-acetyl)** analytical grade

(PMA; TPA; 12-O-Tetradecanoylphorbol-13-acetate)

 $C_{36}H_{56}O_8$ ♦ M_r 616.8 ♦ CAS [16561-29-8]

DANGER

H300-H310-H330 ♦ MAK/TRK 10 ml/
m³, 50 mg/m³ for chloroform ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦ WGK 3 ♦
HS 29159000

Storage temperature -15 °C to -25 °C

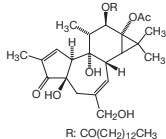
Antileukemic agent (1). Activates protein kinase C (2). Strong inducer of tumor formation, favorite derivative for *in vitro* studies, interferon inducer, along with phytohemagglutinin (3).

Purity (TLC) min. 99.0 %

References:

1. Weinberg, J.B. (1981) Science **213**, 665-7
2. Skoglund, G. et al. (1985) Eur. J. Biochem. **148**, 407-12
3. Yip, Y.K. et al. (1981) Proc. Natl. Acad. Sci. USA **78**, 1601-5

Cat.No.	Size	EUR
32496.01	1 mg	69,00

R: CO(CH₂)₁₂CH₃■ **Phosphatase-Inhibitor-Mix I, powder**

DANGER

H302-H314-H361 ♦ WGK 1 ♦ HS 38220000

Mixture of 5 water-soluble inhibitors against acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, and protein-tyrosine phosphatase. Contains imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39050.01	1 vial	35,00
39050.02	5 vials	145,00
39050.03	10 vials	245,00

■ **Phosphatase-Inhibitor-Mix II, solution**

HS 38220000

Storage temperature +2 °C to +8 °C

Mixture of 7 different inhibitors dissolved in water, suitable for the inhibition of acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, protein-tyrosine phosphatase, and serine/threonine phosphatase.

Contains EDTA, β -glycerophosphate-disodium salt, imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate. 1 ml solution is suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39055.01	1 vial	55,00
39055.02	5 vials	160,00
39055.03	10 vials	265,00

■ **Phosphoramidon** research grade([N-(α -Rhamnopyranosyloxyhydroxyphosphinyl)-L-Leu-L-Trp-Na·2H₂O]) $C_{23}H_{32}N_3O_{10}P\cdot Na_2$ ♦ M_r 587.5 ♦ CAS [119942-99-3]

HS 29419000

Storage temperature +2 °C to +8 °C

Inhibitor for thermolysin and neutral endopeptidase-24.11 (ANP Degradation Enzyme). Inhibits the activity of 'Endothelin Converting Enzyme' (3-9). Microbial product.

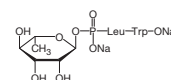
Store dry and protect from light!

Assay (HPLC) min. 90.0 %

References:

1. Suda, H. et al. (1973) J. Antibiotics **26**, 621
2. Roques, B.P. & Beaumont, A. (1990) Trends Pharmacol. Sci. **2**, 245-9
3. Gettins, P. (1988) J. Biol. Chem. **263**, 10208-11
4. Ikegawa, R. et al. (1990) Biochem. Biophys. Res. Commun. **171**, 669-75
5. Rae, G.A. et al. (1993) Eur. J. Pharmacol. **240**, 113-9
6. Patel, K.V. & Schrey, M.P. (1995) Br. J. Cancer **71**, 442-7
7. Fawzi, A.B. et al. (1994) Anal. Biochem. **222**, 342-50
8. Umekawa, T. et al. (1994) J. Pharmacol. Exp. Ther. **269**, 860-6
9. Ohnaka, K. et al. (1993) J. Biol. Chem. **268**, 26759-66

Cat.No.	Size	EUR
32753.01	5 mg	120,00

■ **Phosphotungstic acid hydrate** analytical grade $H_3[P(W_3O_{10})_4]\cdot xH_2O$ ♦ M_r 2880.2 (anhydrous) ♦ CAS [12501-23-4]

DANGER

H314 ♦ GGVSE/ADR 8 III UN3260 ♦ IATA 8 III UN3260 ♦
EINECS 215-682-7 ♦ WGK 2L ♦ HS 28429080

Used for staining of cell specimens and negative staining in electron microscopy.

Chloride max. 0.005 %
Sulfate max. 0.01 %
Lead max. 0.002 %

Cat.No.	Size	EUR
32757.01	25 g	32,00
32757.02	100 g	89,00

■ **o-Phthalaldehyde** analytical grade

(o-Phthalaldehyde)

 $C_8H_6O_2$ ♦ M_r 134.14 ♦ CAS [643-79-8]

DANGER

H301-H314-H317-H400 ♦ GGVSE/
ADR 8 II UN2923 ♦ IATA 8 II UN2923 ♦

EINECS 211-402-2 ♦ WGK 3 ♦ HS 29122900

Storage temperature +2 °C to +8 °C

Especially purified for fluorimetric histidine determination (1). Reagent for amines and alkaloids (2). For amino acids (3, 4). Peptides (5, 6).

Assay (GC) min. 99.0 %
MP 54 - 57 °C

References:

1. Gerber, D.A. (1970) Anal. Biochem. **34**, 500-4
2. Wachsmuth, H. et al. (1960) Z. Anal. Chem. **176**, 77
3. Roth, M. & Hampai, A. (1973) J. Chromatogr. **83**, 353-56
4. Benson, J.R. & Hare, P.E. (1975) Proc. Natl. Acad. Sci. USA **72**, 619-22
5. Mendez, E. & Gavilanes, J.G. (1976) Anal. Biochem. **72**, 473-79
6. Svedas, V.K. et al. (1980) Anal. Biochem. **101**, 188-95

Cat.No.	Size	EUR
32800.01	5 g	27,00
32800.02	25 g	90,00
32800.03	100 g	270,00



■ Piperazine-N,N'-bis(2-ethane sulfonic acid) analytical grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

$C_8H_{18}N_2O_6S_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

HS 29335995

Buffering substance pK_a 20 = 6.8.

Assay (titr.) min. 99.0 %

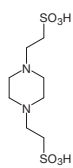
A 1 cm/2 % in NaOH

250 nm max. 0.2

Heavy metals (Pb) max. 0.0005 %

References:

1. Good, N.E. et al. (1966) Biochemistry 5, 467-77



Cat.No.	Size	EUR
32981.01	50 g	31,00
32981.02	250 g	93,00

■ Piperazine-N,N'-bis(2-ethane sulfonic acid)

molecular biology grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

$C_8H_{18}N_2O_6S_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

EINECS 227-057-6 ♦ HS 29335995

DNase/RNase not detected. Buffering substance pK_a 20 = 6.8.

Assay (titr.) min. 99.0 %

Heavy metals (Pb) max. 0.0005 %

Cat.No.	Size	EUR
39779.01	100 g	64,00

■ PIPES

see 32981 Piperazine-N,N'-bis(2-ethane sulfonic acid), page 81, 356, 366

■ Plicamycin

see 29803 Mithramycin A, page 68, 286, 372

■ PMA

see 32496 Phorbol (12-myristoyl-13-acetyl), page 80, 322

■ PMS

see 32030 Phenazine-methosulfate, page 79, 347

■ PMSF

see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

■ Poly-D-lysine 70 000-HBr research grade

$(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r 70 000 - 150 000 ♦ CAS [27964-99-4]

HS 35040090

Storage temperature -15 °C to -25 °C

Hygroscopic. „Attachment factor“ in cell culture and proteinase inhibitor.

Cat.No.	Size	EUR
33224.01	25 mg	105,00

■ Poly-L-lysine 70 000-HBr research grade

$(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r ca. 70 000 - 150 000 ♦ CAS [25988-63-0]

WGK 1 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Cat.No.	Size	EUR
33225.01	25 mg	55,00

■ Polyamide-6-powder research grade

(Polycaprolactam; Perlon; Nylon-6)

HS 39081000

For column chromatography.

Cat.No.	Size	EUR
33143.03	25 g	50,00
33143.02	100 g	159,00

■ Polyclar® AT pract.

CAS [9003-39-8]

WGK 1 ♦ HS 39049000

Water-insoluble polyvinylpyrrolidone for binding phenols.

Heavy metals (Pb) max. 10 ppm

Polyclar = registered trademark of GAF Corp. USA.

References:

1. Loomis, W.D. & Bataille, J. (1966) Phytochemistry 5, 423-38

Cat.No.	Size	EUR
33162.01	100 g	27,00
33162.02	500 g	90,00

■ Polyethylene glycol 1500 solution analytical grade, sterile filtered

(PEG 1500)

M_r ca. 1500

WGK 1L ♦ HS 34042000

Storage temperature +2 °C to +8 °C

Clear sterile filtered solution of PEG 1500 (50 % w/v) in 4 ml of HEPES-buffer (75 mmol/l), pH 8.0. Packed under nitrogen. Free of aldehydes and peroxides, free from Ca^{2+} . Biologically evaluated for high fusion efficiency. Tested as reagent for the fusion of myeloma cells with spleen cells and other hybridoma cells.

Cat.No.	Size	EUR
33123.01	4 ml	39,00
33123.02	4 x 4 ml	129,00

■ Polyethylene glycol 4000

(PEG 4000; Macrogol 4000; Macrogol)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 70 - 80.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_r 3600 - 4400

Hydroxyl value 26.0 - 31.0

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33136.01	500 g	20,00
33136.02	5 kg	145,00

■ Polyethylene glycol 6000

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 140 - 170.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_r 5400 - 6600

Hydroxyl value 17.0 - 21.0

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33137.01	500 g	19,00
33137.02	5 kg	85,00

■ Polyethylene glycol 6000 molecular biology grade

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

Degree of polymerization ca. 140 - 170.

DNase/RNase not detected. Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Mean mol mass 5400 - 6600

Heavy metals (as Pb) max. 5 ppm

Cat.No.	Size	EUR
39778.01	500 g	24,50

■ Polyethylene glycol 20 000

(PEG 20000; Macrogol 20000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 400 - 500.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_n 16 000 - 25 000
Hydroxyl value 4.5 - 7.0
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33138.01	500 g	19,00
33138.02	5 kg	86,00

■ Polyethylene glycol 40 000

(PEG 35000; Macrogol 35000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 800 - 900.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33139.01	500 g	19,00
33139.02	5 kg	86,00

■ Polyethylenimine 50 % solution in water pract.

(Polymyxin P)



WARNING
H302-H411 ♦ GGVSE/ADR 9 III UN3082 ♦ IATA 9 III UN3082
♦ WGK 2 ♦ HS 39019090

Non-volatile matter 48.0 - 52.0 %

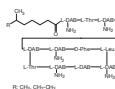
Cat.No.	Size	EUR
33141.03	100 ml	30,00
33141.04	500 ml	100,00

■ Polymyxin-B-sulfate research grade

(Aerosporin)
CAS [1405-20-5]



WARNING
H302 ♦ HS 38210000
Storage temperature +2 °C to +8 °C



Ph. Eur. Mixture of the sulfates of polypeptides produced by the growth of certain strains of *Bacillus polymyxa*, the main component being Polymyxin B1.

Assay (HPLC): sum of Polymyxins B1, B2, B3 and B1-I min. 80 %; Polymyxin B3 max. 6 %; Polymyxin B1-I max. 15 % (all data based on dried substance).

Peptide antibiotic that mainly acts against Gram-negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Used in cell culture media against the contamination of bacteria or in other media for suppression of pathogenic germs (2,3). Inhibitor of the mitogenic response to lipopolysaccharide (4).

References:

- Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63
- Kwak, B. et al. (2000) Nature Medicine **6**, 1399-1402
- Alvarez-Dolado, M. et al. (2003) Nature **425**, 968-73
- Jacobs, D.M. a. Morrison, D.C. (1977) J. Immunol. **118**, 21-7
- Asea, A. et al. (2000) Nature Medicine **6**, 435-42

Cat.No.	Size	EUR
47976.03	1 g	38,00

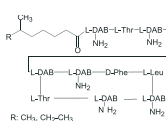
■ Polymyxin-B-sulfate solution sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

Activity 10,000 IU/ml.

Cat.No.	Size	EUR
47975.01	25 ml	24,00



■ Polymyxin E sulfate

see 17420 Colistin sulfate, page 28, 281

■ Polyoxyethylene monolauryl ether

see 15230 Brij 35™, page 19, 142

■ Polysorbate 20

see 39796 Tween® 20, page 119, 303

■ Polysorbate 80

see 37475 Tween® 80, page 119, 146, 325

■ Polysorbate 80 VG for biochemistry

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate)
 M_n 1310 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ HS 34021300

Suitable for cell culture, enzymology, membrane research and other biochemical applications. The fatty acids of this product are purely of vegetable origin.

d25 °C 1.06 - 1.09
HLB 15.0
CMC 1×10^{-5} Mol/L
Hydroxyl number 65 - 80 mg KOH/g
Saponification number 45 - 55 mg KOH/g

Cat.No.	Size	EUR
33100.01	500 g	19,00
33100.02	5 kg	105,00

■ Polysorbate 80 VG

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate, n ca. 20)
 M_n ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. The fatty acids of this detergent are of vegetable origin.

HLB 15.0
CMC 1×10^{-5} mol/l
d25 °C 1.06 - 1.09
Acid number max. 2.0 mg/KOH/g
Hydroxyl number 65 - 80 mg/KOH/g
Saponification number 45 - 55 mg/KOH/g
Peroxide value max. 5 meq/kg
Heavy metals (Pb) max. 10 ppm

Montanox = registered trademark of Seppic, France.

References:

- Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
- Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
- Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
33116.01	500 g	23,00
33116.02	5 kg	135,00

■ Polyvinylpyrrolidone 15 pract.

M_n ca. 10000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Intrinsic viscosity (K-value) ca. 15
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size	EUR
33422.01	100 g	25,00
33422.02	1 kg	139,00

■ Polyvinylpyrrolidone 25 pract.

(Collidon; Plasdione)

M_n ca. 29000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Ph. Eur., USP.

Intrinsic viscosity (K-value) 22.5 - 27.0
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
33420.02	250 g	29,00
33420.03	1 kg	96,00

■ **Polyvinylpyrrolidone 90** molecular biology grade

CAS [9003-39-8]

WGK 1 ♦ HS 39059990

DNase/RNase not detected. Suitable for preparation of Denhardt's Solution for Southern and Northern Blots.

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size	EUR
39609.01	100 g	25,00
39609.02	500 g	59,00

■ **Polyvinylpyrrolidone 90** pract.

M_r ca. 1 100000 ♦ CAS [9003-39-8]

WGK 1 ♦ HS 39059990

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size	EUR
33410.01	100 g	17,00
33410.02	1 kg	59,00

■ **Polyvinylsulfate-K-salt** pure

(C₂H₃O₄S)-K)_n ♦ M_r (162.21)_n, n ≥ 1500 ♦ CAS [26837-42-3]

WGK 1 ♦ HS 39059990

Esterification degree min. 90 %.

Cat.No.	Size	EUR
33426.02	2,5 g	67,00
33426.03	10 g	225,00

■ **Ponceau S**

(Acid Red 112; Fast Ponceau 2B)

C.I.27195 ♦ C₂₂H₁₂N₄O₁₃S₄Na₄ ♦ M_r 760.61 ♦

CAS [6226-79-5]

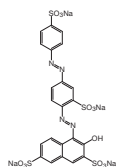


WARNING

H315-H319-H335 ♦ EINECS 228-319-2 ♦ WGK 2L

♦ HS 29270000

λmax. 0.001 % in water 517 - 523 nm
Water (KF) max. 15.0 %
A 1 cm/0.001 % in water/λ max. min. 0.355
ελmax in water min. 27 000
TLC corresponds



Cat.No.	Size	EUR
33429.01	5 g	19,00
33429.02	25 g	32,00

■ **Ponceau S solution for electrophoresis (0.2 %)**



DANGER

H314-H412 ♦ GGVSE/ADR 9 III UN3082 ♦ IATA 9 III UN3082 ♦

WGK 2 ♦ HS 38220000

0.2 % in 3 % TCA. For protein staining.

Cat.No.	Size	EUR
33427.01	500 ml	19,00

■ **Potassium acetate** molecular biology grade

C₂H₃O₂K ♦ M_r 98.14 ♦ CAS [127-08-2]

EINECS 204-822-2 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected.

Assay (titr.) min 99.0 %
Heavy metals (as Pb) max. 0.001 %
pH 5 % in water 7.5 - 9.0

Cat.No.	Size	EUR
39567.01	100 g	20,00
39567.02	500 g	60,00

■ **Potassium chloride** molecular biology grade

KCl ♦ M_r 74.6 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

DNase/RNase not detected.

Assay (titr.) min. 99.0 %
Heavy metals (as Pb) max. 10 ppm
Fe max. 20 ppm

Cat.No.	Size	EUR
39768.01	500 g	24,50
39768.02	1 kg	29,50

■ **Potassium chloride** research grade

KCl ♦ M_r 74.55 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

Ph. Eur.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26868.02	1 kg	24,00

■ **Potassium dihydrogen phosphate anhydrous**

analytical grade

(Potassium phosphate dibasic (sec. potassium phosphate); Potassium phosphate monobasic (prim. potassium phosphate))

KH₂PO₄ ♦ M_r 136.1 ♦ CAS [7778-77-0]

EINECS 231-913-4 ♦ WGK 1 ♦ HS 28352400

Biochemical and enzyme standard. Buffering substance according to Sørensen. 9.072 g in 1 liter water = 1/15 M. Tested for use in tissue culture.

Assay (titr.) min. 99.0 %
pH 5 % in water 4.1 - 4.5
Heavy metals (Pb) max. 10 ppm
Nitrogen (N) max. 10 ppm

Cat.No.	Size	EUR
26870.01	500 g	27,00

■ **di-Potassium hydrogen phosphate** molecular biology grade

(sec. Potassium phosphate; Potassium phosphate dibasic)

K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

DNase/RNase not detected

Assay (titr.) min. 99.0 %
pH 5 % in water 8.7 - 9.4
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
39767.01	250 g	45,00

■ **di-Potassium hydrogen phosphate anhydrous**

analytical grade

(sec. Potassium phosphate; Potassium phosphate dibasic (sec. potassium phosphate))

K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Assay min. 99.0 %
pH 5 % in water 8.7 - 9.3
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26887.01	500 g	35,00

■ **Precast Gels for IEF**

see SERVLYT™ PRECOTES™, page 104, 191

■ **PRECOTES™**

see SERVLYT™ PRECOTES™, page 104, 191

■ **4-Pregnene-3,20-dione**

see 33530 Progesterone, page 84, 323

■ **PreNets™**

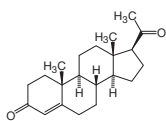
see SERVLYT™ PreNets™, page 104, 192

■ Progesterone analytical grade

(4-Pregnene-3,20-dione)
C₂₁H₃₀O₂ ♦ M_r 314.45 ♦ CAS [57-83-0]



DANGER
H351-H360Fd-H362 ♦ Carc. 2, Repr. 1A ♦
EINECS 200-350-6 ♦ WGK 2 ♦ HS 29372900



Ph. Eur.

Assay 97.0 - 103.0 %

Cat.No.	Size	EUR
33530.03	25 g	71,00

■ L-Proline research grade

(Pro; 2-Pyrrolidinecarboxylic acid)
C₅H₉NO₂ ♦ M_r 115.13 ♦ CAS [147-85-3]

EINECS 205-702-2 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
33582.02	50 g	29,00
33582.03	250 g	75,00

■ Pronase E from *Streptomyces griseus* min.

6.0 DMC-U/mg lyophil.

(*Streptomyces griseus* neutral proteinase; Actinase E)
CAS [9036-06-0]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-909-5 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For structural analysis of proteins (1, 2). Suitable for preparation of bacteriophage lambda DNA (3).

Unit definition: 1 DMC-U (1U) is that amount of enzymatic activity which catalyzes the cleavage of 1 µ-equivalent peptide bond from dimethyl casein per minute at 25 °C, pH 7.5, expressed in terms of the appearance of new terminal amino groups (4).

Activity in other units: ca. 1 000 000 PU-units/g (casein substrate; 40 °C, pH 7.4 (5), ca. 20 000 PUK-units/g (casein substrate, 40 °C, pH 7.5).

Pronase = registered trademark of Calbiochem-Novabiochem Corp.

References:

- Jehanli, A. & Hough, D. (1985) Mol. Immunol. **22**, 557-66
- Tsugita, A. & Akabori, S. (1959) J. Biochem. (Tokyo) **46**, 695-704
- Maniatis, T. et al. (1982) Molecular Cloning - a Laboratory Manual. Cold Spring, Harbor Laboratory, p. 85
- Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
- Nomoto, M. & Narashi, Y. (1959) J. Biochem. (Tokyo) **46**, 653-67

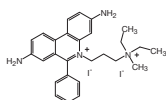
Cat.No.	Size	EUR
33635.01	250 mg	26,00
33635.02	1 g	67,00
33635.03	5 g	298,00

■ Propidium iodide research grade

(3,8-Diamino-5-(3-[diethylmethylammonio]propyl)-6-phenylphenanthridinium diiodide)
C₂₇H₃₄N₄²⁺2I⁻ ♦ M_r 668.4 ♦ CAS [25535-16-4]



DANGER
H301-H315-H319-H331-H335-H
340 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦
EINECS 247-081-0 ♦ WGK 2 ♦ HS 29239000
Storage temperature +2 °C to +8 °C



For selective labeling of DNA in dead cells; used in tumor diagnosis (flow cytometry) (1, 2). For the study of micronuclear morphology of protozoa (3).

References:

- Valet, G. et al. (1987) Blut **49**, 37-43
- ibid. (1984) J. Clin. Chem. Clin. Biochem. **22**, 935-42
- Fox, D.P. et al. (1987) Stain Technol. **62**, 217-20

Cat.No.	Size	EUR
33671.01	25 mg	65,00
33671.02	100 mg	195,00

■ β-Propiolactone research grade

(2-Oxetanone; 3-Hydroxypropionic acid lactone)
C₃H₄O₂ ♦ M_r 72.06 ♦ CAS [57-57-8]



DANGER
H315-H319-H330-H350 ♦ Carc. 1B ♦ EG-
Index 606-031-00-1 ♦ GGVSE/ADR 6.1 II UN2810 ♦

IATA 6.1 II UN2810 ♦ EINECS 200-340-1 ♦ WGK 3 ♦ HS 29322090

Storage temperature -15 °C to -25 °C **

Miscibility with water 37 %. Polymerizes on warming and in the presence of ions (1). For enzyme sterilization (2). Carcinogen (3).

Assay (H-NMR) min. 98.5 %

References:

- Gresham, T.L. et al. (1948) J. Am. Chem. Soc. **70**, 998-9
- Stokes, K.J. (1971) J. Clin. Pathol. **24**, 658-60
- Poirier, L.A. et al. (1979) J. Natl. Cancer Inst. **62**, 833-40

Cat.No.	Size	EUR
33672.01	10 ml	130,00

■ Propylene oxide research grade

(1,2-Epoxypropane)
C₃H₆O ♦ M_r 58.08 ♦ CAS [75-56-9]



DANGER
H224-H302-H312-H315-H319-H332-H335-H
340-H350 ♦ Muta. 1B, Carc. 1B ♦ MAK/TRK 6

mg/m³, 2.5 ml/m³ ♦ EG-Index 603-055-00-4 ♦ GGVSE/ADR 3 I UN1280 ♦
IATA 3 I UN1280 ♦ EINECS 200-879-2 ♦ WGK 3L ♦ HS 29102000

Purity (GC) min. 99.9 %

Cat.No.	Size	EUR
33715.03	500 ml	21,00

■ Protease-Inhibitor Mix HP PLUS

HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine proteases as well as aminopeptidases, Thermolysin and other microbial metalloendoproteases. It is especially recommended for purification of polyHis-tagged proteins and for other applications, where metal-chelators should be avoided.

Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and Phosphoramidon.

Supplied as a kit; each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39107.01	1 vial	45,00
39107.02	5 vials	185,00
39107.03	10 vials	320,00

■ Protease-Inhibitor Mix G

WGK 2 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 5 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine-, serine- and metalloproteases. Recommended for general applications and where the use of organic solvents should be avoided. Contains AEBSF, Aprotinin, E-64, Leupeptin and EDTA.

The content of 1 vial dissolved in 1 ml water results in a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39101.01	1 vial	26,00
39101.02	5 vials	110,00
39101.03	10 vials	195,00

■ Protease-Inhibitor Mix B

WGK 1 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Mixture of 5 protease inhibitors with broad range of activity against aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with bacterial extracts. Contains AEBSF, Bestatin, E-64, Pepstatin A and EDTA. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39105.01	1 vial	43,00
39105.02	5 vials	165,00
39105.03	10 vials	295,00

■ Protease-Inhibitor Mix FY



DANGER
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 1 ♦

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 4 protease inhibitors with broad specificity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases. It is especially formulated for use with fungal and yeast extracts. Contains AEBSF, E-64, Pepstatin A, and 1,10-Phenanthroline. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39104.01	1 vial	35,00
39104.02	5 vials	150,00
39104.03	10 vials	275,00

■ Protease-Inhibitor Mix P



DANGER
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 2 ♦

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 6 protease inhibitors with broad range of activity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with plant extracts. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and 1,10-Phenanthroline. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39103.01	1 vial	43,00
39103.02	5 vials	165,00
39103.03	10 vials	295,00

■ Protease-Inhibitor Mix M

EINECS 200-664-3 ♦ WGK 1 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine-proteases as well as aminopeptidases (metallo-proteases). It is especially formulated for use with extracts from mammalian tissue, but can also be used with other extracts. It is free of EDTA and contains AEBSF, Aprotinin, Bestatin, E-64, Leupeptin and Pepstatin A.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39102.01	1 vial	49,00
39102.02	5 vials	195,00
39102.03	10 vials	325,00

■ Protease-Inhibitor Mix HP

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 4 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine- and serine-proteases. Free of metal-chelators. Recommended for purification of polyHis-tagged proteins and for other applications where metal-chelators should be avoided. Contains AEBSF, Aprotinin, E-64, and Leupeptin. The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39106.01	1 vial	26,00
39106.02	5 vials	110,00
39106.03	10 vials	195,00

■ Proteasome Inhibitor MG-115

(Carbobenzoxyl-L-leucyl-L-leucyl-L-norvalinal; Z-Leu-Leu-Nva-H (aldehyde))
 $C_{25}H_{39}N_3O_5$ ♦ M_r 461.59

HS 29420000
Storage temperature -15 °C to -25 °C

Potent reversible Proteasome inhibitor.

Purity (HPLC) min. 90.0 %

References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Rock, K.L. et al. (1994) Cell **78**, 761
3. Vinitzky, A. et al. (1992) Biochemistry **31**, 9421
4. Palombella, V.J. et al. (1994) Cell **78**, 773

Cat.No.	Size	EUR
33767.01	1 mg	55,00
33767.02	5 mg	195,00

■ Proteasome Inhibitor MG-132

(Carbobenzoxyl-L-leucyl-L-leucyl-leucinal; Z-Leu-Leu-Leu-H (aldehyde))
 $C_{26}H_{41}N_3O_5$ ♦ M_r 475.62 ♦ CAS [133407-82-7]

HS 29420000
Storage temperature -15 °C to -25 °C

Potent, reversible and cell-permeable Proteasome inhibitor.

Assay (HPLC) min. 90.0 %

References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Jensen, T.J. et al. (1995) Cell **83**, 129
3. Lee, D.H. a. Goldberg, A.L. (1996) J. Biol. Chem. **271**, 27280

Cat.No.	Size	EUR
33766.01	1 mg	35,00
33766.02	5 mg	115,00

■ Protein Concentration

see SERVA BluePrep Kits, page 124

■ Protein Desalting

see CentriPure/CentriSpin Kits, page 152

Products for Microscopy:

see special chapter at p. 359

Protein Molecular Weight Standards

HS 38220000

Storage temperature -15 °C to -25 °C

To determine the molecular weight of proteins separated in polyacrylamide gels in their native state SERVA offers a set of 8 proteins.

Proteins are either in solution or lyophilized, the lyophilized proteins can easily be dissolved in water or sample buffer. The molecular weights of the proteins range from 12.400 Da (Cytochrome C) up to 450.000 Da (Ferritin horse).

Please note: In the presence of SDS most of the proteins will fall into their subunits, therefore this marker should not be used for SDS PAGE.

25 mg of each. For native electrophoresis.

Ferritin horse	M _r 450 000
Catalase bovine	M _r 240 000
Aldolase rabbit	M _r 160 000
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Chymotrypsinogen A	M _r 25 000
Myoglobin equine	M _r 17 800
Cytochrome C	M _r 12 400

Cat.No.	Size	EUR
39064.01	1 kit	180,00

Protein Standards (Markers) for IEF

see 39212 IEF Marker 3-10, Liquid Mix, page , 198

Protein Test Mixture 4 for SDS PAGE



(SDS Gel Electrophoresis Markers)

DANGER

H334 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis. The bovine albumin (BSA) contains monomers and oligomers.

Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Phosphorylase B	M _r 97 400
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Carbonic anhydrase	M _r 29 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39208.01	10 mg	49,00

Protein Test Mixture 5 for SDS PAGE



DANGER

H302-H334-H341-H361D ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis.

Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Cytochrome C	M _r 12 500
Trypsin inhibitor (bovine lung)	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39209.01	10 mg	49,00

Protein Test Mixture 6 for SDS PAGE



DANGER

H334 ♦ WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis.

Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Phosphorylase B	M _r 97 400
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Cytochrome C	M _r 12 500
Trypsin inhibitor (bovine lung)	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39207.01	10 mg	49,00

Protein Test Mixture for pI-determination, pH 3-10



DANGER

H334-H341 ♦ WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

pI-marker proteins for pI-determination by isoelectric focusing (IEF).

Reconstitute dry powder with 1 ml water (concentration: 10 mg/ml).

Amyloglucosidase	pI 3.5
Glucose oxidase	pI 4.2
Trypsin inhibitor	pI 4.5
β-Lactoglobulin	pI 5.15/5.3
Myoglobin horse	pI 6.9/7.35
Lentil lectin	pI 7.75/8.0/8.3
Ribonuclease A	pI 9.45
Cytochrome C	pI 10.65
Carboanhydrase	pI 6.0

Cat.No.	Size	EUR
39211.01	10 mg	39,00

Proteinase K from *Tritirachium album*

solution ≥ 20 mg/ml, ≥ 600 U/ml

EC 3.4.21.14 ♦ M_r 28.000

DANGER

H334 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids.

Suitable for the isolation of DNA and RNA (1, 3).

Unit definition: 1 mAnson Unit is defined as the amount of enzyme that liberates Folin-positive amino acids and peptides, corresponding to 1 µmol tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4)

Activity(U/ml): ≥ 600

Inhibitors for Proteinase: AEBF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33755.01	1 ml	30,00
33755.02	5 ml	80,00
33755.03	10 ml	145,00

■ Proteinase K from *Tritirachium album*

min. 8 DMC-U/mg lyophil.

EC 3.4.21.14 ♦ M_r ca. 28 000 ♦ CAS [39450-01-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 254-457-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serin protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition 1 DMC-unit catalyzes the hydrolysis of 1 μmole dimethyl casein per minute at 25 °C, pH 7.0; the liberated amino groups are determined with 2,4,6-trinitrobenzene sulfonic acid (2).

Activities in other units ca. 30 milliAnson-units.

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat. no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al. (1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33752.01	25 mg	27,00
33752.02	100 mg	62,00
33752.03	500 mg	182,00

■ Pteroylmonoglutamic acid

see 21700 Folic acid, page 46, 320

■ Puromycin-2HCl research grade

C₂₂H₂₉N₇O₅·2HCl ♦ M_r 544.4 ♦ CAS [58-58-2]



WARNING

H302-H341 ♦ EINECS 200-387-8 ♦
WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

From *Streptomyces albo-niger*. Free base (M_r 471.5)

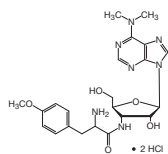
86 %. Inhibitor of protein biosynthesis. Causes premature termination of the nascent polypeptide chain by its action as aminoacyl-t-RNA analog (in procaryotes and eucaryotes).

Purity (HPLC, TLC) min. 98.0 %

References:

1. Vazquez, D. (1974) FEBS Lett. **40**, 63-84
2. Claeysens, S. et al. (1993) FEBS Lett. **315**, 7

Cat.No.	Size	EUR
33835.01	10 mg	21,00
33835.02	50 mg	74,00
33835.03	250 mg	298,00



■ Pyridoxal-5-phosphate analytical grade

(Codecarboxylase; Pyridoxal-5-phosphoric acid)

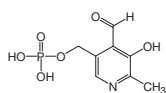
C₈H₁₀NO₆P·H₂O ♦ M_r 265.2 ♦ CAS [41468-25-1]

HS 29362500

Storage temperature +2 °C to +8 °C

Assay (anhydrous, HPLC) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
33940.02	5 g	45,00
33940.03	25 g	145,00

■ Pyridoxine-HCl research grade

(Pyridoxol-HCl; Vitamin B₆)

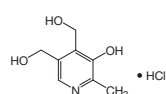
C₈H₁₁NO₃·HCl ♦ M_r 205.6 ♦ CAS [58-56-0]

EINECS 200-386-2 ♦ WGK 1 ♦ HS 29362500

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 20 ppm



Cat.No.	Size	EUR
33990.01	25 g	20,00
33990.02	100 g	49,00

■ Pyridoxol-HCl

see 33990 Pyridoxine-HCl, page 87, 323

■ 3-[2-Pyridyl]-5,6-diphenyl-1,2,4-triazine-4,4'-disulfonic acid-Na-salt

see 21326 Ferrozine®, page 44

■ 2-Pyrrolidinecarboxylic acid

see 33582 L-Proline, page 84

■ Pyruvic acid-Na-salt research grade

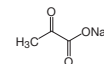
(Sodium pyruvate; Brenztraubensäure-Na)

C₃H₃O₃·Na ♦ M_r 110.04 ♦ CAS [113-24-6]

EINECS 204-024-4 ♦ WGK 1 ♦ HS 29183000

Assay (titr.) min. 99.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
15220.01	25 g	19,00
15220.03	100 g	41,00
15220.04	500 g	156,00

■ α-D-Raffinose research grade

(α-D-Galactopyranosyl-(1 → 6)-α-D-glucopyranosyl-

(1 → 2)-β-D-fructofuranoside)

C₁₈H₃₂O₁₆·5H₂O ♦ M_r 594.56 ♦ CAS [17629-30-0]

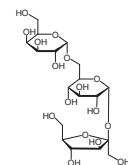
EINECS 208-146-9 ♦ WGK 1 ♦ HS 29400000

For bacteriology.

Purity (HPLC) min. 98.0 %

MP 78 - 82 °C

[α]_D20°C/D (c=10 in water) +103.0° to +107.0 °



Cat.No.	Size	EUR
34140.02	100 g	92,00
34140.03	500 g	340,00

■ Ralufon DL

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

■ RAPA

see 34145 Rapamycin from *Streptomyces hygroscopicus*, page 87, 282, 288

■ Rapamycin from *Streptomyces hygroscopicus*

research grade

(RAPA; Sirolimus; mTOR Inhibitor)

C₅₁H₇₉NO₁₃ ♦ M_r 914.2 ♦ CAS [53123-88-9]

WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic which acts by selectively blocking the transcriptional activation of cytokines, thereby inhibiting cytokine production. It is bioactive only when bound to immunophilins. Potent immunosuppressant, possesses both antifungal and antineoplastic properties.

Assay (HPLC, TLC) min. 97.0 %

References:

1. Seghal, S.N. et al. (1975) J. Antibiot. **28**, 727
2. Weyrich, A.S. et al. (1998) PNAS **95**, 5556-61
3. Guba, M. et al. (2002) Nature Medicine **8**, 128-35
4. Jacinto, E. et al. (2004) Nature Cell Biol. **6**, 1122-8
5. Saiardi, A. et al. (2005) PNAS **102**, 1911-4
6. Xie, M.W. et al. (2005) PNAS **102**, 7215-20
7. Homberger, T.A. a. Shu Chien (2006) J. Cell. Biochem. **97**, 1207-16
8. Mizushima, N. et al. (2008) Nature **451**, 1069-75
9. Levine, B. a. Kroemer, G. (2009) Cell Death and Differentiation **16**, 1-2

Cat.No.	Size	EUR
34145.01	1 mg	190,00

■ **Renlam® M-1**

(ARALDITE® CY 212)



WARNING

H315-H317-H319-H411 ♦ GGVSE/ADR 9 III UN3082 ♦
IATA 9 III UN3082 ♦ WGK 2 ♦ HS 29109000

Solvent-free, modified bisphenol A epoxy resin. Epoxy equivalent weight 232-250. Yields 3-dimensional crosslinking blocks.

Non-toxic substitute for ARALDITE® CY 212, which contained dibutyl phthalate. Renlam® M-1 has identical properties as ARALDITE® CY 212 and can therefore be used in all electron microscopy protocols in exactly the same way as ARALDITE® CY 212.

Viscosity 1400 - 1800 mPa·s/25 °C
Epoxy number 4.10 - 4.35 Eq./kg

Renlam + ARALDITE = registered trademarks of Huntsman Advanced Materials Europe

Cat.No.	Size	EUR
13825.01	250 g	19,00
13825.02	1 kg	51,00

■ **Resazurin-Na-salt analytical grade**

(Diazoresorcinol)

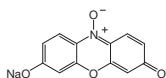
C₁₂H₆NO₄·Na ♦ M_r 251.2 ♦ CAS [62758-13-8]

WARNING

H302-H315-H335 ♦ EINECS 263-718-5
♦ HS 29349990

Indicator pH 3.8 - 6.5. Redox indicator.

Cat.No.	Size	EUR
34226.02	5 g	61,00

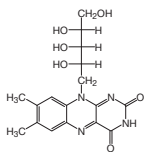
■ **Riboflavin research grade**(Lactoflavin; Vitamin B₂)C₁₇H₂₀N₄O₆ ♦ M_r 376.4 ♦ CAS [83-88-5]

EINECS 201-507-1 ♦ WGK - ♦ HS 29362300

Ph. Eur.

Assay (UV) 97.0 - 103.0 %

Cat.No.	Size	EUR
34350.02	25 g	21,00

■ **Ribonuclease A from bovine pancreas min. 80 Kunitz units/mg lyophil.**

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligo-nucleotidohydrolase)

EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]

DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

An endonuclease which specifically attacks pyrimidine sites (Py/pN) at the 3'-phosphate group. This preparation is salt-free, protease-free and chromatographically homogeneous.

RNase A content: min. 90 % by ion exchange chromatography. DNase not detected.**Unit definition:** 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0**References:**

1. Kunitz, M. (1946) J. Biol. Chem. **164**, 563-8
2. Krupp, G. & Gross, H.J. (1979) Nucl. Acids Res. **6**, 3481-90
3. Levy, C.C. & Kaepetzky, T.P. (1980) J. Biol. Chem. **255**, 2153-9
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.81)
5. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (3.13.1, 5.5.2, 4.7.3, 7.3.8)

Cat.No.	Size	EUR
34388.01	50 mg	35,00
34388.02	250 mg	125,00

■ **Ribonuclease A from bovine pancreas min. 70 Kunitz units/mg lyophil.**EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]

DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

RNase A content approx. 70 %.

DNase-free RNase: To prepare RNase A free of DNase dissolve RNase A in TE-buffer at 1 mg/ml and boil 10 to 30 minutes. Store aliquots at -20 °C to prevent microbial growth.**Unit definition:** 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0.

Cat.No.	Size	EUR
34390.02	100 mg	23,00
34390.03	1 g	152,00

■ **D-Ribose analytical grade**C₅H₁₀O₅ ♦ M_r 150.1 ♦ CAS [50-69-1]

EINECS 200-059-4 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC)

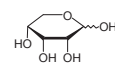
[α]_D²⁰ °C/D (c=4 in water)

Heavy metals (Pb)

min. 99.0 %

-20 ± 2 °

max. 10 ppm



Cat.No.	Size	EUR
34460.02	50 g	57,00
34460.04	10 g	20,00

■ **Rifampicin research grade**

(Rifampin „Lepetit“; Rifamycin-AMP)

C₄₃H₅₈N₄O₁₂ ♦ M_r 822.96 ♦ CAS [13292-46-1]

WARNING

H302-H332 ♦ EINECS 236-312-0 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

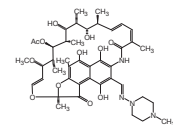
Semisynthetic derivative of rifamycin SV which is produced from certain strains of *Amycolatopsis mediterranei*. Belongs to the group of ansamycin antibiotics. Inhibitor of DNA-dependent RNA-polymerase. Specifically inhibits the initiation step of RNA synthesis.

Assay 98.0 - 102.0 %

References:

1. Meilhac, M. et al. (1972) Eur. J. Biochem. **28**, 291-300
2. Ohta, S. et al. (1990) . Plant Cell Physiol. **31**, 805-13
3. Vilchez, S. et al. (2000) J. Bacteriol. **182**, 91-9
4. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7
5. Freiberg, C. et al. (2004) Current Opinion in Microbiology **7**, 451-9

Cat.No.	Size	EUR
34514.01	1 g	35,00
34514.02	5 g	132,00

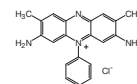
■ **Roller for Electrophoresis**

HS 90330000

Cat.No.	Size	EUR
42991.01	1 piece	63,00

■ **Safranin O pure**

(Basic Red 2; 3,7-Diamino-2,8-dimethyl-5-phenyl-phenazinium-chloride; Safranin T)

C₁₈H₁₆N₄Cl ♦ M_r 350.9 ♦ CAS [477-73-6]

WARNING

H315-H319-H335 ♦ EINECS 207-518-8 ♦ WGK 2L ♦ HS 32041300

Dye for microscopy.

λ_{max}. (0.001 % in water) 518 - 522 nm
A 1 cm (λ_{max}. /0.001 % in water) min. 0.9
ε λ_{max}. (in water) min. 31 580
Water max. 15.0 %**References:**

1. Lillie, E.D. (ed.) H.J. Conn's Biological Stains, 9th ed., p. 385-7

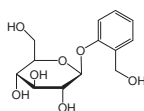
Cat.No.	Size	EUR
34598.01	10 g	24,00

D-Salicin research grade

(Salicylalcohol β-D-glucoside; 2-[Hydroxymethyl]phenyl-β-D-glucopyranoside)

C₁₃H₁₈O₇ ♦ M_r 286.3 ♦ CAS [138-52-3]

EINECS 205-331-6 ♦ HS 29389090



For bacteriology. Substrate for β-glucosidase.

Assay (HPLC)	min. 99.0 %
MP	200 - 202 °C
[α] 20 °C/D (c=5 in water)	-59.5° to -63.5 °
Loss on drying	max. 0.5 %

References:

1. Baruah, P. & Swain, T. (1957) Biochem. J. **66**, 321-3

Cat.No.	Size	EUR
34600.01	5 g	32,00

Salt Active Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C **

Supplied as solution in 25 mM Tris-HCl pH 7.5, 5 mM MgCl₂, 0.5 M NaCl, 0.01 % Triton® X-100, 50 % (v/v) glycerol.

Salt Active Nuclease is a highly active non-specific endonuclease from a marine bacterium that cleaves both DNA and RNA. It digests DNA versus RNA in a 10:1 ratio.

Salt Active Nuclease has optimum activity at 0.5 M NaCl, is active in the pH range of 7 to 10 and low temperatures, which makes the enzyme ideal for use in removal of nucleic acids from cell extracts and proteins samples. It will remove contaminating nucleic acids in a traditional protein buffer system. That guarantees the full protection of proteins while the nucleic acids are fully removed.

- Non specific endonuclease
- Optimum activity at high salt concentration (0.5 M NaCl)
- Active at low temperatures (20 % at 6 °C)
- Broad pH range
- Temperature stable

Specific activity	400.000 Units/mg
pH optimum	pH 9
Salt optimum	0.5 M NaCl

Unit definition: One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute at 37 °C, using 50 µg/ml calf thymus DNA in a buffer consisting of 25 mM Tris-HCl, pH 8.5 (25 °C), 5 mM MgCl₂, 500 mM NaCl.

Cat.No.	Size	EUR
18541.01	5.000 U	92,00
18541.02	25.000 U	390,00

Sample Application Pieces 10 x 5 mm

HS 48232000

Cat.No.	Size	EUR
42880.01	200 pieces	21,00

Sample Buffer for Blue Native (2x)

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Blue Native PAGE. Supplied as 2x concentrate. Contains 1 M 6-aminocaproic acid, 100 mM BisTris-HCl (pH 7.0), 100 mM NaCl, 20 % glycerol, 0.1 % SERVA Blue G.

Cat.No.	Size	EUR
42533.01	20 ml	23,00

Sample Buffer for Clear Native PAGE (2x)

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Clear Native PAGE. Supplied as 2x concentrate. Contains 100 mM NaCl, 100 mM imidazole, 4 mM 6-aminocaproic acid, 2 mM EDTA, 0.02 % Ponceau S, 20 % glycerol.

Cat.No.	Size	EUR
42534.01	20 ml	23,00

Saponin pure

CAS [8047-15-2]



WARNING

H315-H319-H335 ♦ EINECS 232-462-6 ♦ WGK 2L ♦ HS 29389090

DAB 9. Isolated from *Quillaja bark*. For permeabilization of cells.

References:

1. Lupetina, E.G. et al. (1984) Proc. Natl. Acad. Sci. USA **81**, 7431

Cat.No.	Size	EUR
34655.01	50 g	25,00
34655.02	250 g	85,00

Sarkosyl NL-30

see 27570 N-Lauroylsarcosine-Na-salt, page 62

Schneider's Drosophila powder medium revised

HS 38210000

Storage temperature +2 °C to +8 °C

Without sodium bicarbonate, **without** calcium chloride.

Supplements:

Penicillin G-K-salt (cat. no. 31749) 50 U/ml
Streptomycin sulfate 0.1 mg/ml
(cat. no. 35500)

References:

1. Schneider, I. (1964) J. Exp. Zool. **156**, 91-104 and 166

Cat.No.	Size	EUR
47521.04	10 L	85,00

SDS

see 20760 Dodecylsulfate-Na-salt, page 40

SDS Buffer Kit Neutral

HS 38220000

SDS buffer system for SDS-electrophoresis. Contains anode buffer, cathode buffer, cooling contact fluid, and electrode wicks.

Cat.No.	Size	EUR
43354.01	1 kit	80,00

SDS Gel Electrophoresis Markers

see 39208 Protein Test Mixture 4 for SDS PAGE, page 86, 208

SDS Gel Kit 10 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis:

10 % T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43359.01	1 kit	187,00

SDS Gel Kit 10 % 52S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis:

10 % T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43360.01	1 kit	187,00

SDS Gel Kit 15 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis:

15 % T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43361.01	1 kit	187,00

SDS Gel Kit 15 % 52S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis:

15 % T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43362.01	1 kit	187,00

■ SDS Gel Kit NF 12.5 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. 12.5 % T, 25 slots for 15 µl, 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43363.01	1 kit	inquire

■ SDS Gel Kit NF 15 % 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. 15 % T, 25 slots for 15 µl, 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43364.01	1 kit	inquire

■ SDS Urine Gel Kit 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use kit for analysis of urine proteins by SDS gel electrophoresis: 25 slots for 15 µl, 4 gels + buffer kit suitable for urine protein analysis; for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43391.01	1 kit	187,00

■ SDS Solution, 20 %



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

SDS (cat. no. 20770): 200 g/L

Cat.No.	Size	EUR
20767.01	100 ml	16,00
20767.02	500 ml	42,00
20767.03	1 L	69,00

■ SDS Solution, 20 % molecular biology grade



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered

Composition:

SDS (cat. no. 39574): 200 g/L

Cat.No.	Size	EUR
39575.01	100 ml	30,00
39575.02	1 L	79,00

■ SDS Solution, 20 % electrophoresis grade



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

Ultrapure SDS solution, suitable for standard and high resolution electrophoresis techniques.

Composition:

SDS (cat. no. 20771): 200 g/L

Cat.No.	Size	EUR
20768.01	100 ml	18,00
20768.02	500 ml	45,00
20768.03	1 L	74,00

■ L-Seleno-Methionine

C₅H₁₁NO₂Se ♦ M_r 196.1 ♦ CAS [3211-76-5]

DANGER

H301-H331-H373-H400-H410 ♦ EG-

Index 034-002-00-8 ♦ GGVSE/ADR 6.1 II UN3283

♦ IATA 6.1 II UN3283 ♦ WGK 3 ♦ HS 29310099

Assay
Seleniummin. 99.0 %
39.0 - 41.0 %

Cat.No.	Size	EUR
77765.01	500 mg	295,00
77765.02	100 mg	85,00

■ Semi-dry Blotting Buffer Kit for Western Blotting



DANGER

H301-H311-H331-H370 ♦ GGVSE/ADR 6.1 II UN2810 ♦

IATA 6.1 II UN2810 ♦ WGK 1 ♦ HS 38220000

For Western Blotting in the „Semi-dry“ System. Ready-to-use kit, consisting of 3 components:

Buffer I (conc. anode buffer): 0.3 M Tris and 20 % methanol in aqueous solution.

Buffer II (diluted anode buffer): 0.03 M Tris and 20 % methanol in aqueous solution.

Buffer III (cathode buffer): 0.025 M Tris/HCl (pH 9.4), 0.04 M 6-aminocaproic acid and 20 % methanol in aqueous solution.

Cat.No.	Size	EUR
42559.01	3 x 500 ml	101,00

■ SERDOLIT® Ion Exchange Resins

see Special Section, page 378

■ L-Serine research grade

(Ser; L-2-Amino-3-hydroxypropionic acid)

C₃H₇NO₃ ♦ M_r 105.09 ♦ CAS [56-45-1]

EINECS 200-274-3 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)

98.5 - 101.0 %

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size	EUR
34962.02	50 g	28,00
34962.03	250 g	95,00
34962.04	1 kg	315,00

■ L-Serine cell culture grade

(Ser; L-2-Amino-3-hydroxypropionic acid)

C₃H₇NO₃ ♦ M_r 105.09 ♦ CAS [56-45-1]

EINECS 200-274-3 ♦ HS 29224985

Assay (titr.)

min. 98.5 %

Endotoxin

≤ 6.0 E.U./g

Loss on drying

max. 0.5 %

Ammonium (NH₄)

max. 200 ppm

Chloride (Cl)

max. 200 ppm

Sulfate (SO₄)

max. 300 ppm

Heavy metals (as Pb)

max. 10 ppm

Iron (Fe)

max. 10 ppm

Cat.No.	Size	EUR
47215.01	100 g	46,00
47215.02	500 g	180,00

For Dialysis Tubing

see special chapter at p. 156

SERVA 2D PAGE Detergent Sampler

(Detergent Sampler)
HS 38220000

Protein extraction is a crucial step of proteomic analysis. The optimal solubilization of proteins is an essential condition for receiving the best resolution in 2D gel electrophoresis.

The SERVA 2D PAGE Sampler contains six innovative zwitterionic detergents for optimizing protein solubilization. Zwitterionic detergents offer solubilization properties of membrane proteins superior to other detergent types and do not interfere with subsequent MS analysis.

The variety of detergents allows optimizing of the extraction formulas, which vary with cell type and protein of interest.

Each detergent is supplied as 1 g pack size:

CHAPS (cat. no. 17038)
SB 12 (cat. no. 20761)
SB 3-10 (cat. no. 20756)
ASB-14 (cat. no. 20757)
ASB-16 (cat. no. 20758)
ASB-C7BzO (cat. no. 20759)

Cat.No.	Size	EUR
20784.01	1 kit	170,00

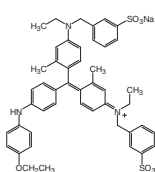
SERVA Blue G

(Acid Blue 90; COOMASSIE® Brilliant Blue G-250;
Xylene Brilliant Cyanine G)
C.I.42655 ♦ C₄₇H₄₈N₃O₇S₂·Na ♦ M_r 854.0 ♦
CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

λmax. (0.001 % pH 7) 580 - 590 nm
A 1 cm/λmax./1 % pH 7 min. 450
Water max. 10.0 %
TLC corresponds

COOMASSIE= TM of ICI Ltd.



Cat.No.	Size	EUR
35050.01	5 g	17,00
35050.02	25 g	25,00
35050.03	100 g	60,00

SERVA Blue G Solution for Blue Native, 1%

HS 38220000

Solution for preparing the blue stained cathode running buffer for Blue Native gel electrophoresis.

SERVA Blue G (cat. no. 35050): 10 g/l in aqua dest.

Cat.No.	Size	EUR
42538.01	20 ml	23,00

SERVA Blue R

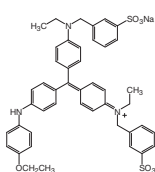
(Acid Blue 83; COOMASSIE® Brilliant Blue R-250)
C.I.42660 ♦ C₄₅H₄₄N₃O₇S₂·Na ♦ M_r 826.0 ♦
CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

R stands for „reddish“.

λmax. (0.0002 % pH 7) 558 - 562 nm
A 1 cm/λmax./0.0002 % pH 7 min. 0.06
ελmax. pH 7 min. 25 000
Water max. 10.0 %
TLC corresponds

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size	EUR
35051.01	5 g	17,00
35051.02	25 g	25,00
35051.03	100 g	60,00

SERVA Blue R Staining Kit



DANGER
H225-H314 ♦ WGK 1 ♦ HS 38220000

Contains 500 ml 0.2 % SERVA Blue R in ethanol and
500 ml 20 % acetic acid.

Cat.No.	Size	EUR
42531.01	1 kit	65,00

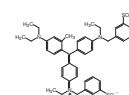
SERVA Blue W soluble in water

(Acid Blue 15)
C.I.42645 ♦ C₄₂H₄₆N₃O₆S₂·Na ♦ M_r 776.0 ♦
CAS [5863-46-7]

EINECS 227-511-3 ♦ WGK 2L ♦ HS 32041200

A triphenylmethane dye, more lipophilic methyl homologue of SERVA Violet R. Suitable for round gels of PAGE, also for flat gels 0.1 - 1.0 mm thick.

λmax. (0.001 % pH 7) 566 - 564 nm
A 1 cm/λmax./0.001 % pH 7 min. 0.5



Cat.No.	Size	EUR
35053.02	25 g	25,00
35053.03	100 g	60,00

SERVA BluePrep Kits

see Chapter Sample Preparation, page 124

SERVA BN PAGE Detergent Sampler

(Detergent Sampler)



DANGER
H301-H311-H318-H331 ♦ HS 38220000

Blue-Native PAGE (BN PAGE), originally described by Schagger and von Jagow, in combination with 2D PAGE or liquid chromatography of proteins is a powerful technique for functional proteomics. It allows the study of protein-protein interactions, and the separation and analysis of very hydrophobic proteins, such as membrane proteins, their complexes, and even super-complexes.

As a first step hydrophobic proteins and complexes have to be solubilized with a mild nonionic detergent, like Triton X®-100, digitonin or dodecyl-beta-D-maltoside. Digitonin is the mildest and therefore allows the separation of intact super-complexes.

The SERVA BN PAGE Sampler contains three non-ionic detergents for optimizing solubilization of protein complexes for Blue native PAGE:

500 mg Triton® X-100 (cat. no. 37240)
250 mg Dodecyl-beta-D-maltoside (cat. no. 20780)
250 mg Digitonin (cat. no. 19550)

References:

- Schagger, H. and Jagow, G., (1991), Anal Biochem. **199**, 223-231
- Krause, F., (2006), Electrophoresis **27**, 2759-2781

Cat.No.	Size	EUR
20785.01	1 kit	65,00

SERVA Cellophane Sheets II

HS 39207100

Format: 140 x 133 mm. For drying of mini vertical slab gels (up to 10 x 10 cm), as run in BlueVertical Mini Slab Gel System (BV 102).

Cat.No.	Size	EUR
42524.01	200 sheets	21,50

SERVA CSF Silver Staining Kit



DANGER
H225-H314-H331-H334-H411 ♦
HS 38220000

High sensitive silver staining kit for staining of up to 5 CSF gels.

Cat.No.	Size	EUR
43398.01	1 kit	145,00

SERVA DensStain Blue G Staining Solution, 2x concentrate For 20 mini gels

HS 38220000

Ready-to-use colloidal staining solution.

- For SDS PAGE gels and native PAGE gels
- For SDS PAGE gels: no fixation is required
- Extreme low background
- Allows analysis by densitometry
- Sufficient for 20 mini gels (10 x 10 cm) or 10 standard gels (14 x 16 cm up to 20 x 20 cm)
- Detects proteins down to 30 ng protein/band (BSA)
- Economical - use staining solution 3 times
- Staining procedure will take approx. 1 to 2 hours
- Stable for at least 12 months

Cat.No.	Size	EUR
35078.01	500 ml	65,00

SERVA DNA Stain G



WARNING
H315-H319 ♦ HS 38220000

SERVA DNA Stain G is a safer alternative to traditional ethidium bromide stain for detecting nucleic acid in agarose gels. It is at least as sensitive as ethidium bromide and can be used in exactly the same way in agarose gel electrophoresis. SERVA DNA Stain G can be added to the gel solution, working dilution is 1:20.000 to 1:50.000. SERVA DNA Stain G emits green fluorescence when bound to DNA or RNA. It has one fluorescence excitation maximum at ca. 300 nm and another at ca. 450 nm when bound to nucleic acid. SERVA DNA Stain G is non-carcinogenic and according to the AMES test it causes significantly fewer mutations than ethidium bromide.

Cat.No.	Size	EUR
39803.01	1 ml	55,00
39803.02	5 x 1 ml	245,00

SERVA DNA Stain Clear G



WARNING
H315-H319 ♦ HS 38220000

SERVA DNA Stain Clear G is a new, non-carcinogenic, much more sensitive and convenient version of our SERVA DNA Stain G. It can be used instead of highly carcinogenic ethidium bromide for detecting nucleic acid in agarose gels.

SERVA DNA Stain Clear G emits green fluorescence when bound to DNA or RNA. It has two secondary fluorescence excitation peaks (ca. 270 nm and 295 nm) and one strong excitation peak centered around 490 nm. The fluorescence emission is similar to EtBr at ca. 530 nm when bound to nucleic acid.

Pre-casting and post-staining protocols are applicable.
1 ml of this stain is sufficient for 17 - 25 L of agarose gel.

Cat.No.	Size	EUR
39804.01	1 ml	82,00
39804.02	5 x 1 ml	360,00

SERVA Dryer Frame Kit

HS 90330000

For drying of mini vertical slab gels (to up to 10 x 10 cm). Containing 2 dryer frames (cat. no. 42521.01) and 200 cellophane sheets (cat. no. 42522.01).

Cat.No.	Size	EUR
42523.01	1 kit	59,00

SERVA Dual Color Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Dual Color Protein Standard III is a dual color prestained size marker. It is a mixture of 10 recombinant prestained polypeptides with molecular weights ranging from 7 kDa to 240 kDa.

SERVA Dual Color III is ready-to-use without the need of reconstitution or further dilution. A blue and orange chromophore is covalently bound to proteins, and the 10 prestained proteins are visible during electrophoresis or on a membrane after Western Blotting. The 25 kDa and 70 kDa proteins labelled with an orange chromophore are easily identified and serve as a landmark.

Because coupling of the proteins affects their apparent molecular weights in SDS-PAGE, unstained protein standard like the SERVA Unstained Protein Standard III (cat. no. 39249) should be used for accuracy >95 %. Recommended loading volume for a mini gel is 5 - 10 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size	EUR
39252.01	500 µl	143,00

SERVA HPE™ Coomassie® Staining Kit

HS 38220000

Colloidal staining kit for highly sensitive staining of 1D and 2D gels after electrophoresis. The kit contains two components to be mixed together prior to use. Kit contains enough reagents to stain 4 large 2D HPE™ gels. Reagents are MS compatible for down stream mass spectrometry analysis.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43396.01	1 kit	85,00

SERVA HPE™ IPG Overlay

HS 27101985

Overlay oil to cover IPG strips during high voltage isoelectric focusing of proteins with nearly no to zero influence on separation behaviour of the IPG strip. Usage of the SERVA IPG Overlay is an important factor for sharp protein spots in high resolution 2D gel electrophoresis. For easy applying the oil a separate dropping bottle is included.

Cat.No.	Size	EUR
43397.01	1 L	49,00

SERVA HPE™ Silver Staining Kit



DANGER
H301-H311-H331-H334-H351-H410 ♦
HS 38220000

Silver staining kit for highly sensitive silver staining of 2D gels. Kit contains reagents to stain 4 large 2D HPE™ gels. Reagents are MS compatible for down stream mass spectrometry analysis.

Cat.No.	Size	EUR
43395.01	1 kit	84,00

SERVA HPE™ Lightning Red

DANGER



H226-H312-H319-H332-H360D ♦ GGVSE/
ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

SERVA HPE™ Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 2D PAGE, making any staining and washing steps after electrophoresis unnecessary. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting. The labelling procedure is simple and quick:

Typically use 80 pmol SERVA HPE™ Lightning Red for labelling of 1 µg protein. Incubate at 0 °C for 15 min. The labeled protein solution is directly applied on IPG strip via cup- or rehydration loading.

After the 2D run detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm.

SERVA HPE™ Lightning Red is compatible with all additives typically used for sample solubilisation and protein extraction, including carrier ampholytes and reductants.

Alkaline conditions are sufficient, it is not required to titrate the pH to a defined value.

- Direct detection
- No staining and washing steps after the run
- Very high sensitivity, < 100 pg protein / spot
- Wide dynamic and linear range of > 10⁴
- No over-staining effects
- Fully MS and Western Blotting compatible

The kit contains 250 µg SERVA HPE™ Lightning Red dye and 25 µl DMF.

Cat.No.	Size	EUR
43400.01	1 kit	249,00

SERVA HPE™ IPG strip buffer

HS 38220000

Storage temperature +2 °C to +8 °C

1 ml 40 % (w/v) SERVALYT™ mixture (pH 3-10) for IPG strip rehydration and sample preparation for 2D electrophoresis.

SERVA IPG strip buffer works for all IPG strips pH gradients. Due to the low molecular weights of the SERVALYT™ buffer molecules there is no background staining in the 2D gels.

Cat.No.	Size	EUR
43368.01	1 kit	39,00

■ SERVA ICPL™ Kit


WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with two labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$) -Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$) -Nicotinoyloxy-succinimide

Applying the ICPL™ method the simultaneous quantitative analysis of two independent proteome samples can be performed by stable protein labelling side by side.

The kit contains ^{12}C - and ^{13}C -Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A + B.

The kit contains reagents for 2 x 6 reactions. A detailed instruction manual is included.

ICPL = registered trademark of TopLab GmbH, Martinsried, Germany

Cat.No.	Size	EUR
39230.01	1 kit	1.120,00

■ SERVA ICPL™ Triplex Kit


WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with three labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$) -Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$) -Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$) -Nicotinoyloxy-succinimide

Applying the ICPL™ triplex method the simultaneous quantitative analysis of three independent proteome samples can be performed by stable protein labelling side by side.

The kit contains ^{12}C -, ^2D - and ^{13}C - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B and C.

The kit contains reagents for 3 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39231.01	1 kit	1.290,00

■ SERVA ICPL™ Quadruplex Kit


WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with four labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$) -Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$) -Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$) -Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{D}_4$) -Nicotinoyloxy-succinimide.

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side. The kit contains ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B, C and X. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39232.01	1 kit	1.490,00

■ SERVA ICPL™ Quadruplex Plus Kit


WARNING

H302-H315-H317-H319-H335-H351 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side.

Included are MS approved endoproteases Trypsin NB and Glu-C for achieving the highest sequence coverage. All four labels can be freely combined with each other. By omitting one label you can as well compare only two or three samples. The enclosed ICPL™-Standard PLUS allows calibration of the analysis system.

The kit contains ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer, standard protein mix A, B, C and X, ICPL™-Standard PLUS, Trypsin NB modified, and Endoproteinase Glu-C. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39233.01	1 kit	1.590,00

■ SERVA IPG BlueStrip 3-10 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP.

Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size	EUR
43001.01	12 strips	69,00

■ SERVA IPG BlueStrip 3-10 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43031.01	12 strips	89,00

■ SERVA IPG BlueStrip 3-10 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43041.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43011.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43021.01	12 strips	115,00

■ SERVA IPG BlueStrip 3-10 NL / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43002.01	12 strips	69,00

■ SERVA IPG BlueStrip 3-10 NL / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43032.01	12 strips	89,00

Products for Electrophoresis:
see special chapter at p. 189

■ **SERVA IPG BlueStrip 3-10 NL / 17 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43042.01	12 strips	99,00

■ **SERVA IPG BlueStrip 3-10 NL / 18 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43012.01	12 strips	99,00

■ **SERVA IPG BlueStrip 3-10 NL / 24 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43022.01	12 strips	115,00

■ **SERVA IPG BlueStrip 3-6 / 7 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43005.01	12 strips	69,00

■ **SERVA IPG BlueStrip 3-6 / 11 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43035.01	12 strips	89,00

■ **SERVA IPG BlueStrip 3-6 / 17 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43045.01	12 strips	99,00

■ **SERVA IPG BlueStrip 3-6 / 18 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43015.01	12 strips	99,00

■ **SERVA IPG BlueStrip 3-6 / 24 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43025.01	12 strips	115,00

■ **SERVA IPG BlueStrip 4-7 / 7 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43003.01	12 strips	69,00

■ **SERVA IPG BlueStrip 4-7 / 11 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43033.01	12 strips	89,00

■ **SERVA IPG BlueStrip 4-7 / 17 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43043.01	12 strips	99,00

■ **SERVA IPG BlueStrip 4-7 / 18 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43013.01	12 strips	99,00

■ **SERVA IPG BlueStrip 4-7 / 24 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43023.01	12 strips	115,00

■ **SERVA IPG BlueStrip 5-8 / 7 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43006.01	12 strips	69,00

■ **SERVA IPG BlueStrip 5-8 / 11 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43036.01	12 strips	89,00

■ **SERVA IPG BlueStrip 5-8 / 17 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43046.01	12 strips	99,00

■ **SERVA IPG BlueStrip 5-8 / 18 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43016.01	12 strips	99,00

■ **SERVA IPG BlueStrip 5-8 / 24 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43026.01	12 strips	115,00

■ **SERVA IPG BlueStrip 6-10 / 7 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43004.01	12 strips	69,00

■ **SERVA IPG BlueStrip 6-10 / 11 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43034.01	12 strips	89,00

■ **SERVA IPG BlueStrip 6-10 / 17 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43044.01	12 strips	99,00

■ **SERVA IPG BlueStrip 6-10 / 18 cm**

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43014.01	12 strips	99,00

SERVA IPG BlueStrip 6-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43024.01	12 strips	115,00

SERVA Lightning Red for 1D SDS PAGE



DANGER

H226-H312-H319-H332-H360D ♦ HS 38220000

Storage temperature +2 °C to +8 °C

SERVA Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 1D SDS PAGE, making any staining and washing steps after electrophoresis unnecessary. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting. The labelling procedure is simple and quick: Just mix your sample with the provided SERVA SDS sample buffer pH 8.3, after heating add the sample to 10 µl dye solution and incubate for 30 min at room temperature.

After the run detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm.

Samples of protein concentrations between 1 and 10 mg/ml can be used and no purification or concentration steps after labelling are necessary. Sufficient for 500 lanes or 1250 lanes – no matter what size of gel – mini, wide or large format – you use

- Direct detection
- No staining and washing steps after the run
- Very high sensitivity, < 0.5 ng BSA
- Wide dynamic and linear range
- No over-staining effect
- Fully MS and Western Blotting compatible

Cat.No.	Size	EUR
43401.01	500 reactions	155,00
43401.02	1.250 reactions	315,00

SERVA Native Marker, Liquid Mix for BN/CN

HS 38220000

Storage temperature -15 °C to -25 °C

Molecular Weight Marker for Blue and Clear Native PAGE. Ready-to-use. Contains native proteins ranging from 720 kDa to 21 kDa.

Ferritin horse	M _r 450 000/720 000
Urease jack bean	M _r 272 000/545 000
Lactate dehydrogenase porcine	M _r 146 000
Albumin bovine	M _r 67 000
Albumin egg	M _r 45 000
Trypsin inhibitor soybean	M _r 21 000

Cat.No.	Size	EUR
39219.01	5 x 50 µl	135,00

SERVA Pink Color Protein Standard II

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Pink Color Protein Standard II is a mixture of 11 pre-stained proteins of a molecular weight range from 10.5 to 175 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a pink chromophore and contain for easy identification three blue bands at approximate 10 kDa, 40 kDa and 90 kDa (separation on a SDS Tris-Glycine gel).

It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Pink Color Protein Standard II is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 5 µl/lane.

Cat.No.	Size	EUR
39259.01	500 µl	139,00

SERVA Prestained SDS PAGE Protein Marker 6.5 - 200 kDa, liquid mix

HS 38220000

Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Covalently stained standard proteins ranging from 6.5 kDa to 200 kDa (see below).

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat. no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. The proteins are covalently stained and are represented in quantities to guarantee an equal distribution in band intensity, the proteins are stored in 50 mM TrisHCl, 2 % SDS, 10 % sucrose, pH 6.8.

Myosin	M _r 200 000
β-Galactosidase	M _r 116 000
Albumin bovine (BSA)	M _r 67 000
Ovalbumin	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Lysozyme	M _r 14 300
Aprotinin	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39216.01	2 x 250 µl	139,00

SERVA PRiME DNA Sample Buffer (3x)

HS 38220000

Storage temperature +2 °C to +8 °C

Although higher agarose concentrations can be used to separate small DNA fragments, separation on a polyacrylamide gel results in better resolution and separation. Due to a defined pore size, polyacrylamide gels have a resolving capability of 0.2 % difference in DNA length. Additionally, polyacrylamide gels can be loaded with up to 10 µg nucleic acid without any loss in resolution.

For optimal separation of small DNA fragments between 10 bp and 3000 bp, we developed the SERVA PRiME DNA sample buffer. It is a high density sample buffer optimized for non-denaturing DNA gel electrophoresis on SERVAGel TG PRiME vertical mini gels.

Cat.No.	Size	EUR
42544.01	10 ml	25,00

SERVA ProteinStain Fluo-R powder

C₇₂H₄₂N₆Na₄RuS₆ ♦ M_r 1664.5

WGK 2L ♦ HS 28439090

SERVA ProteinStain Fluo-R is a highly sensitive fluorescent dye for detection of proteins in e. g. SDS-PAGE, native PAGE or 2D gels. The dye does not interfere with immunodetection. Therefore you can stain your gel with SERVA ProteinStain Fluo-R and then proceed with Western Blotting receiving a copy of your gel on the membrane.

The dye can as well be used for pre-staining, just use it in the loading buffer instead of bromophenol blue or other dyes.

It is as sensitive as silver staining, but has superior staining properties, which makes it the first choice for proteomic research. The dye has a good linearity, high contrast and is compatible with MS/MS analysis. The staining can be as well combined with silver staining and DIGE.

The dye is easily soluble in water. Just dissolve 5 mg in 3 L water to receive a 1 µM staining solution. Or prepare a 20 mM stock solution by dissolving 5 mg in 150 µl water. The dye is best excited with UV light of wave length 473/488 nm. Excitation with laser light of wave length 532 nm is as well possible, but less sensitive.

Cat.No.	Size	EUR
35090.01	5 mg	98,00
35090.02	25 mg	398,00

■ SERVA ProteinStain Fluo-R solution

HS 38220000

Storage temperature +2 °C to +8 °C

Concentrate of SERVA ProteinStain Fluo-R (cat. no. 35090). Dilute 1:1000 to receive a 1 µM staining solution.

SERVA ProteinStain Fluo-R is a highly sensitive fluorescent dye for detection of proteins in e. g. SDS-PAGE, native PAGE or 2D gels. The dye does not interfere with immunodetection. Therefore you can stain your gel with SERVA ProteinStain Fluo-R and then proceed with Western Blotting receiving a copy of your gel on the membrane.

The dye can as well be used for pre-staining, just use it in the loading buffer instead of bromophenol blue or other dyes.

It is as sensitive as silver staining, but has superior staining properties which makes it the first choice for proteomic research. The dye has a good linearity, high contrast and is compatible with MS/MS analysis. The staining can be as well combined with silver staining and DIGE.

The dye is best excited with UV light of wave length 473/488 nm. Excitation with laser light of wave length 532 nm is as well possible, but less sensitive.

Cat.No.	Size	EUR
35091.01	1 ml	79,00

■ SERVA ProteinStain Fluo-Y solution, 100 x

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA ProteinStain Fluo-Y is a fast and sensitive fluorescent protein stain for 1D or 2D SDS-PAGE. The 100x stock solution is simply diluted with water to its working concentration. After binding of the dye to proteins, it emits a strong fluorescence of bright golden colour. The maximum emission wave length of protein-bound dye is near 570 nm. Gels stained with SERVA ProteinStain Fluo-Y may be directly visualized with a variety of different UV-based fluorescence imaging systems.

Gels are fixed with ethanol/acetic acid solution and then directly stained with SERVA ProteinStain Fluo-Y. The whole staining procedure is completed in as little as 30 min. A destaining step is usually not necessary. But for reduction of background, simply wash gels in water for 1 – 5 min.

The bound dye is easily removed from the protein by washing the gel with sufficient water. Thus the staining is compatible with subsequent mass spectrometric analysis. Stained gels may be stored in stain solution in the dark at 2 – 8 °C.

- Highly sensitive fluorescent protein stain over a wide dynamic range
- Two-step protocol, no destain
- Directly detected by UV-imaging systems
- MS compatible

Cat.No.	Size	EUR
35092.01	10 ml	162,00

■ SERVA Purple



DANGER

H225-H302-H312-H319-H332 ♦ GGVSE/ADR 3 II UN1648
♦ IATA 3 II UN1648 ♦ WKG 2L ♦ HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Purple is a fluorescence dye that reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product. This unique mechanism provides sensitive quantification of proteins in 1 and 2D gels of all chemistries, on both PVDF and nitrocellulose blots and provides unparalleled compatibility with mass spectrometry. Sensitivity to as low as 50 pg/band. Linear quantification over 4 orders of magnitude. Compatible with MS, DIGE-labelling. Environmentally friendly. Easy to use.

Cat.No.	Size	EUR
43386.01	25 ml	275,00
43386.02	4 x 25 ml	995,00

■ SERVA Recombinant SDS PAGE Protein Marker 10 - 150 KDa, liquid mix

HS 38220000

Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Recombinant proteins ranging from 10 kDa to 150 kDa (see below).

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat. no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. The proteins are represented in quantities to guarantee an equal distribution in band intensity, the protein content is approx. 0.1 - 0.2 mg/ml. The proteins are stored in 50 mM TrisHCl, 10 mM DTT, 2 % SDS, 0.1 % bromophenol blue, pH 6.8.

Protein 1	M _r 150 000
Protein 2	M _r 100 000
Protein 3	M _r 80 000
Protein 4	M _r 60 000
Protein 5	M _r 40 000
Protein 6	M _r 30 000
Protein 7	M _r 20 000
Protein 8	M _r 10 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39217.01	500 µl	98,50

■ SERVA Silver Staining Kit Native PAGE For 25 gels



DANGER

H301-H311-H314-H317-H351-H411 ♦
HS 38220000

Silver staining kit for easy and rapid staining of proteins after native PAGE gel electrophoresis, e.g. of IEF gels:

- contains everything needed for fixation and staining
- fast staining procedure (45 - 60 min.)
- very low background
- high sensitivity
- with detailed staining manual
- for 25 applications

Cat.No.	Size	EUR
35077.01	1 kit	175,00

■ SERVA Silver Staining Kit SDS PAGE For 25 gels



DANGER

H226-H301-H311-H314-H317-H351-H411 ♦ HS 38220000

Silver staining kit for easy and rapid staining of proteins after SDS PAGE gel electrophoresis:

- contains everything needed for fixation and staining
- fast staining procedure (45 - 60 min.)
- very low background
- high sensitivity
- with detailed staining manual
- for 25 applications

Cat.No.	Size	EUR
35076.01	1 kit	175,00

■ SERVA Triple Color Protein Standard II

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard II is a mixture of 10 pre-stained proteins of a molecular weight range from 11 to 180 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-Glycine gel).

It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard II is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 – 5 µl/lane.

Cat.No.	Size	EUR
39257.01	500 µl	139,00

Find Centrifuges,
Thermoshakers and
Aspiration Systems at p. 260

SERVA Triple Color Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard III is a mixture of 13 pre-stained proteins of a molecular weight range from 5 to 245 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-Glycine gel).

It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard III is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins.

The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 – 5 µl/lane.

Cat.No.	Size	EUR
39258.01	500 µl	139,00

SERVA Tris-Glycine Native Electrophoresis Buffer (10x)

HS 38220000

Storage temperature +2 °C to +8 °C

Running buffer for native PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine.

Cat.No.	Size	EUR
42530.01	1 L	30,00

SERVA Tris-Glycine Native Sample Buffer (2x)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for native PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42528.01	20 ml	18,00

SERVA Tris-Glycine/SDS Electrophoresis Buffer (10x)

HS 38220000

Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine, 1 % SDS.

Cat.No.	Size	EUR
42529.01	1 L	28,00

SERVA Tris-Glycine/SDS Sample Buffer (2x)

(Tris-Glycine/SDS sample buffer)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42527.01	20 ml	18,00

SERVA Tris-MOPS/SDS Electrophoresis Buffer (20x)

(MOPS; Tris-MOPS/SDS running buffer)

HS 38220000

Running buffer for SDS-PAGE. Optimized formulation to improve separation performance for high molecular proteins, especially when used together with SERVAGE[™] Neutral pH 7.4 (cat. no. 43220 and 43221) precast gels. Supplied as 20 x concentrate. Contains 1.2 M Tris (pH 8.4), 0.6 M MOPS and 2 % SDS.

Cat.No.	Size	EUR
42561.01	1 L	79,00

SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x)

(Tris-Tricine/SDS running buffer)

HS 38220000

Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 1 M Tris, 1 M Tricine and 1 % SDS.

Cat.No.	Size	EUR
42552.01	1 L	78,00

SERVA Tris-Tricine/SDS Electrophoresis Buffer (20x)

HS 38220000

Running buffer for SDS-PAGE. Optimized formulation to improve sharpness of bands, especially when used together with SERVAGE[™] Neutral pH 7.4 (cat. no. 43220 and 43221) precast gels. Supplied as 20 x concentrate. Contains 1.2 M Tris (pH 8.5), 0.8 M Tricine and 2 % SDS.

Cat.No.	Size	EUR
42560.01	1 L	79,00

SERVA Tris-Tricine/SDS Sample Buffer (2x)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS Page. Supplied as 2 x concentrate. Contains 900 mM Tris/HCl (pH 8.45), 24 % glycerol, 4 % SDS, 0.015 % SERVA Blue G and 0.005 % phenol red.

Cat.No.	Size	EUR
42551.01	20 ml	21,00

SERVA Unstained Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Unstained Protein Standard III is a mixture of 10 recombinant polypeptides with molecular weights ranging from 7 kDa to 240 kDa. SERVA Unstained Protein Standard III is ready-to-use without the need of reconstitution or further dilution. The 25 kDa and 70 kDa serve as a landmark, because they are present at a higher concentration in the mixture relative to the adjacent bands.

Recommended loading volume for a mini gel is 5 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size	EUR
39249.01	500 µl	98,00

SERVA Violet 17

(Acid Violet 17; COOMASSIE[®] Violet R-150)

C.I.42650 ♦ C₄₁H₄₄N₃O₆S₂·Na ♦ M_r 761.9 ♦

CAS [4129-84-4]



H411 ♦ GGVSE/ADR 9 III UN3077 ♦

IATA 9 III UN3077 ♦ EINECS 223-942-6 ♦

WGK 3L ♦ HS 32041200

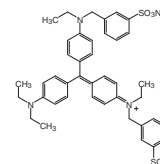
For staining of proteins in PAGE.

λ_{max}. (0.001 % in water) 544 - 550 nm

A 1 cm/λ_{max}/0.001 % in water min. 0.8

Water (KF) max. 10.0 %

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size	EUR
35072.01	5 g	19,00
35072.02	25 g	25,00
35072.03	100 g	60,00

SERVACEL[®] Cellulose Ion Exchangers

see Special Section, page 381

■ SERVA Violet 17 Staining Kit



DANGER
H314-H411 ♦ GGVSE/ADR 8 III UN1805 ♦ IATA 8 III UN1805
♦ HS 38220000

The SERVA Violet 17 Staining Kit is suited to stain all vertical and horizontal gels after isoelectric focusing (IEF). The kit is convenient, safe and easy to use and contains everything needed for fixation, staining and destaining. The colloidal stain SERVA Violet 17 gives you high sensitivity when staining IEF gels. No organic solvents are needed to apply SERVA Violet 17 staining. The SERVA Violet 17 Staining Kit contains 1 g SERVA Violet 17 and 500 ml stain solubilizer solution, ready-to-use solutions for fixation (2 x 500 ml) and destaining (500 ml) and a detailed protocol for the detection procedure. The kit contains enough stain and solutions for 5 to 10 applications (large/small gels).

Cat.No.	Size	EUR
35074.01	1 kit	108,00

■ SERVA Western Blot Protein Standard

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Western Blot Protein Standard marker is a mixture of 8 recombinant proteins of a molecular weight range from 16 000 to 215 000. It is provided in a ready-to-use formula and no reconstitution, further dilution or adding of extra reagents is necessary before use. The highly purified recombinant proteins are designed to bind immunoglobulins with high affinity in a denatured form, thus marker proteins bind to primary or secondary antibodies in your Western Blotting. SERVA Western Blot marker is suitable for chemiluminescence and chromogenic detection methods using horseradish peroxidase or alkaline phosphatase.

The marker proteins are adjusted to result in even signal intensities, thus the marker can not only be used for reproducible molecular weight estimation directly on western blots, but as well for optimizing western transfer conditions and control of the detection system.

Protein 1	M _r 215 000
Protein 2	M _r 150 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 16 000

Cat.No.	Size	EUR
39256.01	250 µl	143,00

■ SERVACHrom Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

SERVACHrom Protein Standard III is a mixture of 10 recombinant purified and prestained polypeptides. The molecular weights are well-adjusted ranging from 7 to 240 kDa:

7 kDa - blue, 15 kDa - red, 20 kDa - blue, 25 kDa - orange, 35 kDa - green, 50 kDa - yellow, 70 kDa - orange, 100 kDa - violet, 140 kDa - blue, 240 kDa - orange.

It is provided preblended in a ready-to-use formula and no reconstitution or further dilution is necessary before use. For SERVACHrom Protein Standard III, 6 different dyes offer a good contrast so 10 prestained proteins are visible during electrophoresis or electrophoretic transfer from the gel to membrane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size	EUR
39255.01	500 µl	155,00

■ SERVAGel™ TG PRiME™ 8 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size	EUR
43260.01	10 gels	120,00
43260.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size	EUR
43261.01	10 gels	120,00
43261.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 10 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size	EUR
43263.01	10 gels	120,00
43263.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 10 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size	EUR
43264.01	10 gels	120,00
43264.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 12 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size	EUR
43266.01	10 gels	120,00
43266.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 12 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ PRiME™ TG 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size	EUR
43267.01	10 gels	120,00
43267.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 12 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43268.01	10 gels	120,00
43268.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 14 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size	EUR
43269.01	10 gels	120,00
43269.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 14 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size	EUR
43270.01	10 gels	120,00
43270.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 14 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43271.01	10 gels	120,00
43271.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 12 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size	EUR
43273.01	10 gels	120,00
43273.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 12 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 12 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size	EUR
43274.01	10 gels	120,00
43274.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 20 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 20 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size	EUR
43276.01	10 gels	120,00
43276.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 20 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 20 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size	EUR
43277.01	10 gels	120,00
43277.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size	EUR
43279.01	10 gels	120,00
43279.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size	EUR
43280.01	10 gels	120,00
43280.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43281.01	10 gels	120,00
43281.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ TG PRiME™ 12 % precast gels with 12 sample wells (cat. no. 43266), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size	EUR
43206.01	1 kit	65,00

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43220) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size	EUR
43221.01	10 gels	120,00
43221.03	2 gels	27,00

■ **SERVAGel™ Neutral pH 7.4** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-Glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43222.01	10 gels	120,00
43222.03	2 gels	27,00

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43220) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size	EUR
43221.01	10 gels	120,00
43221.03	2 gels	27,00

■ **SERVAGel™ Neutral pH 7.4 Gradient** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43222) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa. To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size	EUR
43223.01	10 gels	120,00
43223.03	2 gels	27,00

■ **SERVAGel™ Neutral HSE** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43221). With the standard SDS-Tris-Glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43245.01	10 gels	120,00
43245.03	2 gels	27,00

■ **SERVAGel™ Neutral HSE** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43223). With the standard SDS-Tris-Glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43246.01	10 gels	120,00
43246.03	2 gels	27,00

■ **SERVAGel™ Neutral HSE, 2D** precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE, 2D well is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient. With the standard SDS-Tris-Glycine buffer system (Laemmli) two 2D gels can be operated at 300 V, which reduces the electrophoresis time to 40 min.

For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43247.01	10 gels	120,00
43247.03	2 gels	27,00

■ **SERVAGel™ Neutral HSE Starter Kit** 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ Neutral HSE precast gels with 12 sample wells (cat. no. 43245), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size	EUR
43207.01	1 kit	65,00

■ **SERVAGel™ N 3-12, Vertical Native Gel 3 - 12 %** precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 3-12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43250.01	10 gels	120,00
43250.03	2 gels	27,00

■ **SERVAGel™ N 3-12, Vertical Native Gel 3 - 12 %** precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 3-12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43251.01	10 gels	120,00
43251.03	2 gels	27,00

■ SERVAGel™ N 4-16, Vertical Native Gel 4 - 16 %

precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 4-16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43253.01	10 gels	120,00
43253.03	2 gels	27,00

■ SERVAGel™ N 4-16, Vertical Native Gel 4 - 16 %

precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 4-16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43252.01	10 gels	120,00
43252.03	2 gels	27,00

■ SERVAGel™ N Native Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains:

- 2 precast gels SERVAGel™ N 3-12, Vertical Native Gels 3-12 % (10 sample wells, cat. no. 43251)
- 2 precast gels SERVAGel™ N 4-16, Vertical Native Gels 4-16 % (10 sample wells, cat. no. 43253)
- 250 ml 10x Native Anode Buffer for BN/CN (cat. no. 42535)
- 250 ml 10x Native Cathode Buffer for BN/CN (cat. no. 42536)
- 50 µl SERVA Native Marker Liquid Mix for BN/CN (cat. no. 39219)
- 2 ml Sample Buffer for Blue Native (2x) (cat. no. 42533)
- 2 ml Sample Buffer for Clear Native (2x) (cat. no. 42534)
- 5 ml SERVA Blue Solution for BN, 1 % (cat. no. 42538)

Cat.No.	Size	EUR
43204.01	1 kit	65,00

■ SERVAGel™ IEF 3-10 precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size	EUR
43240.01	10 gels	190,00
43240.03	2 gels	43,00

■ SERVAGel™ IEF 3-10 precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size	EUR
43242.01	10 gels	190,00
43242.03	2 gels	43,00

■ SERVAGel™ IEF Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains:

- 4 SERVAGel™ IEF precast gels of your choice (cat. no. 43240 or 43242)
- SERVA IEF anode buffer (1x, powder for 2.5 l buffer, cat. no. 42539)
- SERVA IEF cathode buffer 3-10 (10x, powder for 100 ml buffer, cat. no. 42539)
- IEF sample buffer (2x 1 ml, cat. no. 42537)
- SERVA Violet 17 (0.5 g, cat. no. 35072)
- SERVA IEF Marker 3-10, Liquid Mix (30 µl, cat. no. 39212)

Cat.No.	Size	EUR
43205.01	1 kit	96,00

■ SERVAGel™ IEF Running Buffer Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Running Buffer Kit for SERVAGel™ IEF 3-10.

Contains:

- SERVA IEF anode buffer (1x, powder for 5 l buffer)
- SERVA IEF cathode buffer 3-10 (10x, powder for 200 ml buffer)

Cat.No.	Size	EUR
42539.01	1 kit	79,00

■ SERVALight Polaris CL HRP WB Substrate Kit

(Chemiluminescence Substrate Kits)

HS 38220000

Storage temperature +2 °C to +8 °C

Highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- High sensitivity, low pictogram limit of detection
- Long light emission for 6 hours
- Primary antibody dilution 1:1000 - 1:5000
- Secondary antibody dilution 1:20.000 - 1:100.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42584.01	100 ml	68,00
42584.02	250 ml	130,00
42584.03	500 ml	203,00

■ SERVALight Eos CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Very highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- Very high sensitivity, high femtogram limit of detection
- Very long and steady light emission for 12 hours
- Primary antibody dilution 1:1000 - 1:15.000
- Secondary antibody dilution 1:25.000 - 1:150.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42585.01	50 ml	70,00
42585.02	250 ml	176,00
42585.03	500 ml	335,00

■ SERVALight EosUltra CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Ultrahigh sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

SERVALight EosUltra substrate is optimized for maximum length of light emission and therefore ideal for detection by CCD imaging systems.

- Ultrahigh sensitivity, low femtogram limit of detection
- Extremely long light emission at a very high signal level for 18 hours
- Primary antibody dilution 1:5000 -1:50.000
- Secondary antibody dilution 1:50.000 – 1:250.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42586.01	20 ml	83,00
42586.02	100 ml	338,00
42586.03	200 ml	560,00

■ SERVALight Helios CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Extremely sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

Due to the extremely high light output of the SERVALight Helios substrate very short exposure times or very high dilution of antibodies can be used. Especially when using film detection this is critical to receive optimal performance.

- Extreme sensitivity, low femtogram limit of detection
- Long light emission for 8 hours
- Primary antibody dilution 1:5000 -1:100.000
- Secondary antibody dilution 1:100.000 – 1:500.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42587.01	20 ml	92,00
42587.02	100 ml	395,00
42587.03	200 ml	630,00

■ SERVALYT™ 2-4

(Carrier Ampholytes; Ampholytes)

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42902.01	10 ml	99,00
42902.02	25 ml	205,00

■ SERVALYT™ 2-9 Seed-Mix

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special quality for seed analysis by IEF.

Cat.No.	Size	EUR
42935.01	10 ml	99,00
42935.02	25 ml	205,00
42935.03	100 ml	625,00

■ SERVALYT™ 2-11

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42900.01	10 ml	99,00
42900.02	25 ml	205,00

■ SERVALYT™ 3-4

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42922.01	10 ml	124,00
42922.02	25 ml	236,00

■ SERVALYT™ 3-5

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42903.01	10 ml	99,00
42903.02	25 ml	205,00
42903.04	2 ml	35,00

■ SERVALYT™ 3-6

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42944.01	10 ml	99,00
42944.02	25 ml	205,00
42944.04	2 ml	35,00

■ SERVALYT™ 3-7

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42945.01	10 ml	99,00
42945.02	25 ml	205,00

■ SERVALYT™ 3-10

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42940.01	10 ml	99,00
42940.02	25 ml	205,00
42940.04	2 ml	35,00

■ SERVALYT™ 3-10 Iso-Dalt, for 2D-GE

HS 38220000

Storage temperature +2 °C to +8 °C

Iso-Dalt quality; special 2D-grade to be used in 2D-electrophoresis.

Cat.No.	Size	EUR
42951.01	10 ml	124,00
42951.02	25 ml	236,00
42951.04	2 ml	35,00

■ **SERVALYT™ 4-5**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42923.01	10 ml	124,00
42923.02	25 ml	236,00

■ **SERVALYT™ 4-6**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42904.01	10 ml	99,00
42904.02	25 ml	205,00
42904.04	2 ml	35,00

■ **SERVALYT™ 4-7**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42948.01	10 ml	99,00
42948.02	25 ml	205,00
42948.04	2 ml	35,00

■ **SERVALYT™ 4-9 T**

HS 38220000

Storage temperature +2 °C to +8 °C

Technical grade quality for preparative work. Formation of solid particle (quart. ammonium salts) can be found over time of storage at low temperature. This will not affect the separation as precipitate will dissolve upon dilution (working solution) or warming up to room temperature.

Cat.No.	Size	EUR
42910.01	10 ml	54,00
42910.02	25 ml	106,00
42910.03	100 ml	389,00

■ **SERVALYT™ 5-6**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42924.01	10 ml	124,00
42924.02	25 ml	236,00

■ **SERVALYT™ 5-7**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42905.01	10 ml	99,00
42905.02	25 ml	205,00
42905.04	2 ml	35,00

■ **SERVALYT™ 5-7 PGM**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special type for phosphoglucumutase subtyping by IEF.

Cat.No.	Size	EUR
42936.01	10 ml	124,00
42936.02	25 ml	236,00

■ **SERVALYT™ 5-8**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42949.01	10 ml	99,00
42949.02	25 ml	205,00
42949.04	2 ml	35,00

■ **SERVALYT™ 5-9**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42950.01	10 ml	99,00
42950.02	25 ml	205,00

■ **SERVALYT™ 6-7**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42925.01	10 ml	124,00
42925.02	25 ml	236,00

■ **SERVALYT™ 6-8**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42906.01	10 ml	99,00
42906.02	25 ml	205,00
42906.04	2 ml	35,00

■ **SERVALYT™ 6-9**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42913.01	10 ml	99,00
42913.02	25 ml	205,00
42913.04	2 ml	35,00

■ **SERVALYT™ 7-9**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42907.01	10 ml	99,00
42907.02	25 ml	205,00
42907.04	2 ml	35,00

■ **SERVALYT™ 9-11**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42909.01	10 ml	99,00
42909.02	25 ml	205,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

(Precast Gels for IEF; PRECOTES™)



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

SERVALYT™ PRECOTES™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42965.03	5 gels	166,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42967.02	5 gels	229,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42866.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42867.02	5 gels	229,00

■ SERVALYT™ PRECOTES™ Range pH 3-6



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42974.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 3-6



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42919.03	5 gels	229,00

■ SERVALYT™ PRECOTES™ Range pH 3-6



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42874.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 4-6



DANGER

H340-H350-H361F ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42875.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 6-9



DANGER

H340-H350-H361F ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42978.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 6-9



DANGER

H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42878.02	5 gels	166,00

■ SERVALYT™ PreNets™ pH 3-10

HS 38220000

Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.

SERVALYT™ PreNets™ for subsequent blotting. They are precast gels, used in the same manner as the related SERVALYT™ PRECOTES™ except that the gel, supported by a NetFix™ polyester fabric, is permeable for electrotransfer. The gel layer is not covalently bound to the backing and is lifted off easily.

SERVALYT™ PreNets™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42738.02	5 gels	208,00

■ SERVALYT™ PreNets™ pH 4-6

HS 38220000

Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.

Description see cat. no. 42738 (above).

Cat.No.	Size	EUR
42748.02	5 gels	208,00

■ SERVASnow Staining Kit Zinc staining solution for protein gels



DANGER

H302-H314-H361-H400-H410 ♦ HS 38220000

The SERVASnow Staining Kit is ideal for in-gel protein detection preceding many downstream applications, because it is a completely reversible staining. The simple rapid staining method results in a stained gel with an opaque milky-white background and clear protein bands. The proteins are fixed in the gel after staining, which enables the user to interrupt his assays between electrophoresis and transfer. The white background is easily removed with a Tris-EDTA buffer. The proteins are free of any dyes and can then be restained by other methods, transferred to membrane for Western Blotting or eluted from an excised gel piece.

- Fast – time required is 25 min.
- Sensitive – detection limit <10 ng protein
- Gentle – no chemical modification of the proteins
- Reversible – stain can be completely erased from the gel

Cat.No.	Size	EUR
35080.01	1 kit	69,00

■ Sialic acid

see 10465 N-Acetylneuraminic acid, page 3

■ Silica Gel Desiccant, orange

HS 28399000

Heavy-metal free moisture indicating beads. Contain organic dye indicator which changes colour from orange to green when beads have adsorbed about 6 % water. Adsorption of water continues however until maximum capacity is reached. Capacity ca. 42 % at 25 °C and 80 % relative humidity. Regeneration occurs between 130 - 160 °C with change in colour again to orange.

Particle size: 2 - 5 mm.

Cat.No.	Size	EUR
27160.01	500 g	29,00

■ Silicone anti-foam emulsion, 30 %

(30 % Dimethicone)
HS 39100000

USP. Dow Corning® 30 % polydimethylsiloxane in water; contains traces of emulsifiers derived from plant.

Cat.No.	Size	EUR
35119.01	100 ml	21,00
35119.02	500 ml	47,00

■ Silicone DC 200 fluid; 10 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.934 - 0.940

Cat.No.	Size	EUR
35132.01	500 g	36,00

■ Silicone DC 200 fluid; 20 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.946 - 0.952

Cat.No.	Size	EUR
35133.01	500 g	33,00

■ Silicone DC 200 fluid; 50 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.957 - 0.963

Cat.No.	Size	EUR
35134.01	500 g	33,00

■ Silicone DC 200 fluid; 100 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.962 - 0.968

Cat.No.	Size	EUR
35135.01	500 g	25,00

■ Silicone DC 200 fluid; 350 cst pract.

WGK 1L ♦ HS 39100000

Dimethyl siloxane polymer (methyl silicones).
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
Density (25 °C) 0.966 - 0.972

Cat.No.	Size	EUR
35136.01	500 g	27,00

■ Silicone DC 550 fluid; 115 cst pract.

WGK 1L ♦ HS 39100000

(Polyphenylmethyl dimethylsiloxane)
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
(25 % Methyl-75 % phenylsilicone). Excellent thermostability; lubricant; for instrument sterilization.
Density (25 °C) 1.06 - 1.07

Cat.No.	Size	EUR
35145.01	500 g	81,00

■ Silicone DC 710 fluid; 500 cst pract.

M_r 2600

WGK 1L ♦ HS 39100000

(Phenylmethyl dimethylsiloxane)
In terms of SI-units: 1 cst = $10^{-6} \text{m}^2 \text{s}^{-1}$
(50 % Methyl-50 % phenylsilicone). For GC, tmax. 225 °. Extremely stable at high temperatures.
Density (25 °C) 1.10 - 1.11

Cat.No.	Size	EUR
35149.01	100 g	27,00
35149.04	1 kg	140,00

■ Silicone solution SERVA for siliconizing glass and metal in isopropanol



DANGER
H225-H319-H336 ♦ GGVSE/ADR 3 II UN1219 ♦
IATA 3 II UN1219 ♦ WGK 1 ♦ HS 39100000

Suitable for siliconizing UV quartz cuvettes.

References:

1. J. Biol. Chem. (1995), 270 (52), 30927-32

Cat.No.	Size	EUR
35130.01	100 ml	15,00
35130.03	250 ml	20,00
35130.02	1 L	45,00

■ Silver nitrate analytical grade

AgNO₃ ♦ M_r 169.89 ♦ CAS [7761-88-8]



DANGER
H272-H314-H318-H400-H410 ♦ MAK/TRK
0,01E ♦ EG-Index 047-001-00-2 ♦ GGVSE/
ADR 5.1 II UN1493 ♦ IATA 5.1 II UN1493 ♦ EINECS 231-853-9 ♦ WGK 3L ♦
HS 28342980

Assay

min. 99.9 %

Cat.No.	Size	EUR
35110.01	25 g	50,00
35110.02	100 g	150,00

■ SingleQuant Assay Kit



DANGER
H225-H314 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

Single tube format assay kit for protein quantification. The assay bases on the precipitation of proteins as insoluble dye complexes with acidic, ethanolic amido black 10B solution (1,2). After precipitation the protein-dye complexes are spun down. The pellet is washed and resuspended. The thereby released dye amount is measured at 624 nm.

- Precise, reproducible, reliable assay data
- Completed in only 45 min.
- No interference with detergents or reducing agents
- Detection range starts as low as 2 µg protein.

References:

1. Schaffner W., Weissmann C. (1973) Anal. Biochem. **65**: 502-514.
2. Popov N., Schmitt M., Schulzeck S., Matthies H. (1975) Acta Biol. Med. Ger. **34** (9): 1441-1446.

Cat.No.	Size	EUR
39226.01	200 tests	145,00
39226.02	600 tests	285,00

Products for Sample Preparation:

see special chapter at p. 123

■ **Skim Milk Powder** for blotting

CAS [68514-61-4]

HS 04021011

Skim milk powder is used as a blocking reagent in immunological assays like Western Blotting or ELISA. It is as well suitable for blocking of nitrocellulose filters in cDNA cloning.

It is not suitable for biotin/streptavidin detection systems, because milk contains biotin.

Protein	32.0 - 35.0 %
Fat max.	1.25 %
Lactose	51.0 - 56.0 %
pH (10 % in water)	6.5 - 6.7
Ash	7.2 - 8.2
Water max.	4.0 %

References:

1. Johnson, D. A. et al. (1987) Gene Anal. Techn. **1**, 3 - 8
2. Harlow, E. & Lane, D. (1988) Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
42590.01	500 g	16,00
42590.02	1 kg	26,00
42590.03	5 kg	94,00

■ **Sodium-1-naphthyl hydrogen phosphate**

see 30130 1-Naphthyl phosphate-Na-salt, page 70, 347

■ **Sodium-L-(+)-ascorbate**

see 14033 L-Ascorbic acid-Na-salt, page 15, 319, 343

■ **Sodium-β-glycerophosphate**see 23330 2-Glycerolphosphate-Na₂-salt, page 53, 139■ **Sodium acetate** analytical grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1L ♦ HS 29152900

pKa 25 = 4.76

Assay (titr.) min. 98.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
21249.02	500 g	22,00

■ **Sodium acetate** molecular biology grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1 ♦ HS 29152900

DNase/RNase not detected. pKa 25 = 4.76.

Assay (titr.) min. 98.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
39571.01	500 g	38,50

■ **Sodium acetate buffer pH 5.2, solution 3M**

molecular biology grade

(Acetic acid-Na-salt)

C₂H₃O₂-Na ♦ M_r 82.0 ♦ CAS [127-09-3]

HS 38220000

DNase/RNase not detected.

Composition:C₂H₃O₂-Na (cat. no. 39571) 246.0 g/l

Cat.No.	Size	EUR
39572.01	250 ml	18,50
39572.02	1 L	52,00

■ **Sodium azide** research gradeNaN₃ ♦ M_r 65.01 ♦ CAS [26628-22-8]

DANGER

H300-H400-H410 ♦ MAK/TRK 0,2 mg/m³ ♦ EG-

Index 011-004-00-7 ♦ GGVSE/ADR 6.1 II UN1687 ♦

IATA 6.1 II UN1687 ♦ EINECS 247-852-1 ♦ WGK 2L ♦ HS 28500060

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
30175.01	100 g	21,00
30175.02	1 kg	115,00
30175.03	250 g	36,00

■ **Sodium bicarbonate** molecular biology gradeNaHCO₃ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1L ♦ HS 28363000

DNase/RNase not detected.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
39780.01	250 g	24,50
39780.02	1 kg	79,00

■ **Sodium bicarbonate** research grade

(Sodium hydrogen carbonate)

NaHCO₃ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1 ♦ HS 28363000

USP, Ph.Eur. Tested for use in tissue culture. Buffering substance.

Assay (titr.) 99.0 - 100.5 %
pH 5 % in water 7.9 - 8.4
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
30180.02	1 kg	32,00

■ **Sodium cacodylate**see 15540 Cacodylic acid-Na-salt-3H₂O, page 21, 365■ **Sodium carbonate** analytical gradeNa₂CO₃ ♦ M_r 106.0 ♦ CAS [497-19-8]

WARNING

H319 ♦ EG-Index 011-005-00-2 ♦ EINECS 207-838-8 ♦ WGK 1L ♦

HS 28362000

Assay (titr.) 99.5 - 100.5 %
Heavy metals (Pb) max. 50 ppm

Cat.No.	Size	EUR
30181.02	1 kg	22,00

■ **Sodium chloride** cryst. research gradeNaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size	EUR
30183.01	1 kg	14,00

■ **Sodium chloride** molecular biology gradeNaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

DNase/RNase not detected.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size	EUR
39781.01	250 g	20,00
39781.02	1 kg	29,00

■ Sodium chloride solution, 5 M molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected.

Composition:

NaCl (cat. no. 39781) 292.2 g/l

Cat.No.	Size	EUR
39782.01	1 L	59,00

■ Sodium cholate

see 17126 Cholic acid-Na-salt, page 26, 143

■ Sodium deoxycholate

see 18330 Deoxycholic acid-Na-salt, page 34, 143

■ Sodium dihydrogen phosphate-2H₂O molecular biology grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

HS 28352200

DNase/RNase not detected.

Assay 98.0 - 100.5 %
Sulfate (SO₄) max. 0.03 %
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size	EUR
39784.01	250 g	35,00
39784.02	1 kg	58,00

■ Sodium dihydrogen phosphate-2H₂O research grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size	EUR
30186.02	1 kg	32,00

■ Sodium dodecyl sulfate

see 20760 Dodecylsulfate-Na-salt, page 40

■ Sodium dodecyl sulfate

see 20765 Dodecylsulfate-Na-salt in Pellets, page 40, 246

■ Sodium glucuronate

see 22890 D-Glucuronic acid-Na-salt, page 51

■ Sodium hydrogen carbonate

see 30180 Sodium bicarbonate, page 106, 324, 356

■ di-Sodium hydrogen phosphate-2H₂O analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sørensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.) 98.0 - 100.5 %
pH 5 % solution 9.0 - 9.2
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
30200.01	500 g	24,00

■ di-Sodium hydrogen phosphate-2H₂O molecular biology grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

HS 28352200

DNase/RNase not detected. Buffering substance.

Assay min. 99.5 %
pH 5 % solution 9.0 - 9.2
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size	EUR
39783.01	250 g	32,00
39783.02	1 kg	55,00

■ Sodium laurylsulfate

see 20760 Dodecylsulfate-Na-salt, page 40

■ Sodium laurylsulfate

see 20765 Dodecylsulfate-Na-salt in Pellets, page 40, 246

■ Sodium molybdate-2H₂O analytical grade

Na₂MoO₄·2H₂O ♦ M_r 241.95 ♦ CAS [10102-40-6]

EINECS 231-551-7 ♦ WGK 1 ♦ HS 28417000

Ph. Eur. For electron microscopy. Inhibitor of Acid Phosphatase and Phosphoprotein Phosphatase.

Assay min. 99.0 %
Heavy metals (Pb) max. 100 ppm

Cat.No.	Size	EUR
30207.01	50 g	28,00

■ Sodium phosphate monobasic (prim. sodium phosphate)

see 39784 Sodium dihydrogen phosphate-2H₂O, page 107, 301

■ Sodium pyruvate

see 15220 Pyruvic acid-Na-salt, page 87, 323

■ Sodium succinate

see 14972 Succinic acid-Na₂-salt, page 109

■ Sodium taurocholate

see 35779 Taurocholic acid-Na-salt, page 110, 145, 325

■ Sodium Thiosulfate Pentahydrate for Silver Staining analytical grade

Na₂S₂O₃·5H₂O ♦ M_r 248.2 ♦ CAS [10102-17-7]

EINECS 231-867-5 ♦ WGK 1L ♦ HS 28323000

Assay (titr.) min. 99.5 %
Heavy metals (Pb) < 5 ppm
Cu < 5 ppm
Fe < 5 ppm

Cat.No.	Size	EUR
30218.01	10 g	12,00

■ α-Sophorose research grade

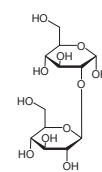
(2-O-β-D-Glucopyranosyl-α-D-glucose)

C₁₂H₂₂O₁₁·H₂O ♦ M_r 360.3 ♦ CAS [20429-79-2]

WGK 1 ♦ HS 29400000

Assay (HPLC) min. 98.0 %

Cat.No.	Size	EUR
35208.01	50 mg	60,00



■ D-Sorbitol molecular biology grade

(D-Glucitol)

C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [50-70-4]

EINECS 200-061-5 ♦ HS 29054499

DNase/RNase not detected.

Assay (HPLC) 97.0 - 102.0 %
MP 98 - 102 °C

Cat.No.	Size	EUR
39785.01	500 g	27,50

■ D-Sorbitol research grade

(D-Glucitol)

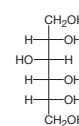
C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [50-70-4]

HS 29054499

Ph. Eur. For bacteriology and pharmacology. Tested for use in tissue culture.

Assay (HPLC) 97.0 - 102.0 %
MP 98 - 102 °C
Lead max. 0.5 ppm

Cat.No.	Size	EUR
35230.02	1 kg	24,00



■ **Sorbitol gelatin after Clemens** phenol-free

HS 38220000

Glycerol-free aqueous slide mounting medium for microscopy, especially suitable for nuclear staining with Hematoxylin as well as lipid and metachromatic staining. It does not contain phenol, making it a safe, non-hazardous alternative.

Refractive index 1.44 - 1.47

Cat.No.	Size	EUR
23313.01	15 ml	12,00

■ **Sorbitolin**

HS 38220000

Glycerol substitute. Non-crystallizing sorbitol solution (74 %).

Refractive index 1.464

Density (20 °C) 1.28

Cat.No.	Size	EUR
23323.01	100 ml	11,00

■ **Sortex-Kit 10 %**

HS 38220000

Storage temperature -15 °C to -25 °C

Cereal-cultivar-differentiation electrophoresis kit. 4 gels 10 % T + special buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43358.01	1 kit	187,00

■ **Spacer Strips**

HS 39269097

Silicone, size 265 x 7 x 0.5 mm, for forming the mould in capillary casting techniques.

Cat.No.	Size	EUR
42901.01	4 pieces	18,00

■ **Spectinomycin-2HCl pentahydrate**

(Actinospectacin; M 141)

C₁₄H₂₄N₂O₇·2HCl·5H₂O ♦ M_r 495.4 ♦ CAS [22189-32-8]

WARNING

H315-H319-H335 ♦ EINECS 244-554-3 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Cell culture tested.

Water-soluble aminoglycoside antibiotic from *Streptomyces* sp. (1,2). Inhibitor of protein synthesis (3). Differs from other aminoglycoside derivatives in that it is bacteriostatic instead of bactericidal.

Stock solution: 10 mg/ml in distilled water, sterile filtered.

For molecular biology applications standard working concentration is 100 µg/ml and in cell culture 7.5 – 20 mg/l.

References:

1. Wagner J. G. et al. (1968) Int. Z. Klin. Pharmakol. Ther. Toxikol. **7**, 261 – 85
2. Wallace, B.J. et al. (1979) Antibiotics **5**, 272 – 303
3. Wallace, P.-C. et al. (1979) in Antibiotics, vol. **V**, part I. Mechanism of Action of Antibacterial Agents, Springer Verlag Berlin

Cat.No.	Size	EUR
35294.01	5 g	65,00
35294.02	25 g	268,00

■ **Spectra/Por® Dialysis Membranes**

see Chapter Dialysis, page 159

■ **Spectra/Por® Float-A-Lyzer® Membranes**

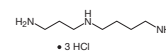
see Chapter Dialysis, page 176

■ **Spectra/Por® Biotech Dialysis Membranes**

see Chapter Dialysis, page 170

■ **Spermidine-3HCl** research grade

(N-(3-Aminopropyl)-1,4-diaminobutane-3HCl)

C₇H₁₉N₃·3HCl ♦ M_r 254.6 ♦ CAS [334-50-9]

WARNING

H315-H319-H335 ♦ EINECS 206-379-0 ♦ WGK 1 ♦ HS 29212900

Storage temperature +2 °C to +8 °C

Keep under argon.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
35285.02	5 g	72,00

■ **Spurr Embedding Medium**

see 21041 Embedding Medium ERL-4221D, page 42, 360

■ **20xSSC buffer** molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected. 20 x concentrated aqueous solution. Commonly used buffer in transfer, blocking and hybridization in both Northern and Southern Blotting

Composition:

NaCl (cat. no. 39781) 175.32 g/L (3 M)

Na₃-citrate x 2 H₂O 88.23 g/L (0.3 M)

(cat. no. 38642)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (pp. 7.46-7.47, 9.38-9.39, 9.50)
2. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), Suppl. **40**, A.2.5

Cat.No.	Size	EUR
42555.01	1 L	27,00
42555.04	10 L	149,00

■ **Staining kit Gallein**

HS 38220000

An alternative to nuclear staining with Hematoxylin. Nuclei will be coloured red. The kit contains 25 ml staining solution, 50 ml rinsing solution and 10 ml mounting medium.

Cat.No.	Size	EUR
23321.01	1 kit	32,00

■ **Staining kit Myrthilin**

HS 38220000

An alternative to nuclear staining with Hematoxylin. Myrthilin is used as dye and the nuclei will be coloured purple. The kit contains 25 ml staining solution, 50 ml fixing solution, 50 ml rinsing solution and 10 ml mounting medium.

Cat.No.	Size	EUR
23322.01	1 kit	27,00

■ **Stains-all**

see 19284 4,5,4',5'-Dibenzo-3,3'-diethyl-9-methylthiacarbocyanine ·bromide, page 36, 241

■ **Starch (Smithies)**

(Starch hydrolyzed; Toronto-starch)

CAS [9005-25-8]

EINECS 232-679-6 ♦ WGK 1L ♦ HS 35051090

For starch gel electrophoresis.

Cat.No.	Size	EUR
35370.01	100 g	45,00
35370.02	500 g	145,00
35370.03	2 kg	510,00

■ Staurosporine research grade

$C_{28}H_{26}N_4O_3$ ♦ M_r 466.5 ♦ CAS [62996-74-1]



DANGER

H301-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦

IATA 6.1 II UN2811 ♦ WGK 2 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Potent inhibitor of phospholipid/ Ca^{2+} dependent and cyclic nucleotide dependent protein kinases (1, 2, 3).

Inhibits also platelet aggregation (4).

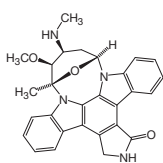
Protect from light!

Assay (HPLC)

min. 95.0 %

References:

1. Tamaoki, T. et al. (1986) Biochem. Biophys. Res. Commun. **135**, 397
2. Oka, S. et al. (1986) Agric. Biol. Chem. **50**, 2723
3. Lazdins, J. et al. (1987) Int. J. Cancer **40**, 846
4. Hidaka, H. et al. (1984) Biochemistry **23**, 5036



Cat.No.	Size	EUR
35385.02	500 µg	180,00

■ Stem bromelain

see 15250 Bromelain from pineapple stem ca. 0.5 DMC-U/mg, page 20, 328

■ Streptavidin lyophil. salt-free

M_r ca. 60000 ♦ CAS [9013-20-1]

HS 35040090

Storage temperature -15 °C to -25 °C

Avidin from *Streptomyces avidinii*, isolated from fermentation filtrates by ion exchange chromatography.

Activity (biotin binding) min. 14.6 U/mg protein.

Unit definition: one unit of streptavidin will bind 1 µg of biotin.

Protein content: 90 - 100 %

Isoelectric point: 6.5 - 7.5

Cat.No.	Size	EUR
35490.01	1 mg	61,00
35490.02	5 mg	247,00
35490.03	10 mg	427,00

■ Streptomyces griseus neutral proteinase

see 33635 Proteinase E from *Streptomyces griseus* min. 6.0 DMC-U/mg, page 84, 291, 338

■ Streptomycin sulfate research grade

$C_{21}H_{39}N_7O_{12} \cdot 1 \frac{1}{2} H_2SO_4$ ♦ M_r 728.7 ♦ CAS [3810-74-0]



WARNING

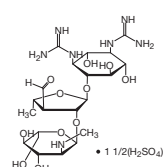
H302-H332 ♦ EINECS 223-286-0 ♦ WGK 2 ♦

HS 29412080

Ph. Eur. Min. 720 U/mg. Aminoglycoside antibiotic from *Streptomyces griseus*. Blocks the initiation complex and causes misreading on ribosomes in protein synthesis. Inhibits function only of the 30S subunit.

References:

1. Zierhut, G. et al. (1979) Eur. J. Biochem. **98**, 577-83
2. Wallace, B.J. et al. (1979) in Antibiotics Vol. V, part C; Mechanism of Action of Antibacterial Agents, Springer, Berlin
3. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7



Cat.No.	Size	EUR
35500.01	10 g	13,00
35500.02	100 g	33,00
35500.03	1 kg	199,00

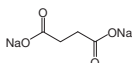
■ Succinic acid- Na_2 -salt research grade

(Bernsteinsäure- Na -salz; Sodium succinate)

$C_4H_4O_4 \cdot Na_2 \cdot 6H_2O$ ♦ M_r 270.1 ♦ CAS [6106-21-4]

EINECS 205-778-7 ♦ WGK 1L ♦ HS 29171990

Assay (titr., based on dried substance) min. 99.0 %



Cat.No.	Size	EUR
14972.02	500 g	73,00

■ Sucrose analytical grade

(Saccharose; Cane sugar)

$C_{12}H_{22}O_{11}$ ♦ M_r 342.3 ♦ CAS [57-50-1]

EINECS 200-334-9 ♦ HS 29400000

Free of DNA, RNA, DNase and RNase. Special grade for biochemistry and density gradient centrifugation. Tested for use in tissue culture.

Assay (HPLC)

min. 99.0 %

$[\alpha]_D^{20}$ (c=20 in water)

+66 ± 1 °

A 1 cm/50 % in water

260 nm

max. 0.25

280 nm

max. 0.2

Iron (Fe)

max. 0.5 ppm

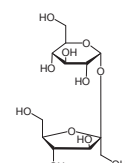
Lead (Pb)

max. 0.1 ppm

References:

1. Fraenkel-Conrat, H. & Singer, B. (1962) Biochemistry **1**, 120-8 (p. 127)

Cat.No.	Size	EUR
35579.02	500 g	14,00
35579.03	5 kg	97,00
35579.04	25 kg	398,00



■ Sucrose research grade

(Saccharose; Cane sugar)

$C_{12}H_{22}O_{11}$ ♦ M_r 342.3 ♦ CAS [57-50-1]

EINECS 200-334-9 ♦ HS 29400000

For gradient centrifugation, bacteriology and electrophoresis.

Assay (HPLC)

min. 98.0 %

A 1 cm/50 % in water

260 nm

max. 0.3

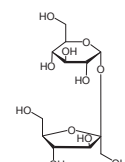
280 nm

max. 0.25

Heavy metals (Pb)

max. 1 ppm

Cat.No.	Size	EUR
35580.02	1 kg	15,00
35580.03	5 kg	46,00
35580.04	25 kg	199,00



■ Sulfobetaine SB 12

see 20761 N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate, page 39, 143, 245

■ Sulfobetaine SB 3-10 research grade

(Caprylyl sulfobetaine; N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate; 3-(Decyldimethylammonio)propanesulfonate inner salt) HS 34021900

Zwitterionic detergent for solubilization of membrane proteins in their native state.

Micellar average weight

12 600

Aggregation number

41

CMC

25 - 40 mM (20 - 25 °C)

Assay (HPLC)

min. 98.0 %

References:

1. Hochstein, L.I., et al., (1987) Biochem. Biophys. Res. Commun. **147**, 295-300
2. Schulz, W., et al., (1989) J. Steroid Biochem. **32**, 581-590

Cat.No.	Size	EUR
20756.01	5 g	80,00
20756.02	25 g	276,00

■ 5-Sulfosalicylic acid analytical grade

(2-Hydroxy-5-sulfobenzoic acid)

$C_7H_6O_6S \cdot 2H_2O$ ♦ M_r 254.23 ♦ CAS [5965-83-3]



DANGER

H302-H314 ♦ GGVSE/ADR 8 III UN2585

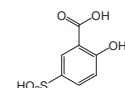
♦ IATA 8 III UN2585 ♦ EINECS 202-555-6 ♦ WGK 2 ♦

HS 29182900

Assay

min. 99.0 %

Cat.No.	Size	EUR
35706.01	100 g	28,00



■ Superoxide dismutase from bovine erythrocytes min. 3000 units/mg lyophil.

(CuZnSOD; Erythrocuprein; Superoxide: superoxide oxidoreductase)
EC 1.15.1.1 ♦ M_r ca. 32 000 ♦ CAS [9054-89-1]



DANGER

H334 ♦ EINECS 232-943-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Scavenger of highly toxic radicals in the culture of anaerobes (1).

Unit definition: 1 unit catalyzes a 50 % inhibition in the rate of reduction of cytochrome C at 25 °C, pH 7.8 (2).

Extraneous activities: carbonic anhydrase max. 0.01 %

References:

1. Bannister, J.V. et al. (1987) CRC Critical Reviews in Biochemistry **22**, (2), 111-80
2. McCord, J.M. & Fridovich, I. (1969) J. Biol. Chem. **244**, 6049-55

Cat.No.	Size	EUR
35700.03	100.000 U	145,00

■ Synperonic® F108 pract.

M_r ca. 14000 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polypropylene glycol (M_r ca. 3 250): poly(ethylene glycol) ca.

1:4. MP 55 - 60 °C. Strongly hydrophilic (HLB ca. 27). More than 10 % soluble in water.

Registered trademark of ICI

Cat.No.	Size	EUR
35726.01	100 g	17,00
35726.02	1 kg	53,00

■ Synperonic® F68 pract.

M_r ca. 8300 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polyol detergent, block-copolymer. Pluronic™ PE 6800. Poloxamer 188.

Poly(propylene glycol) (M_r ca. 1 750): poly(ethylene glycol) ca. 1:4.

MP ca. 55 °C.

Strongly hydrophilic detergent (HLB approx. 29). More than 10 % soluble in water, forms foams moderately. Used in cell culture to protect microorganisms, animal and plant cells against mechanical damage.

Synperonic = trademark of ICI, Pluronic = trademark of BASF AG.

References:

1. Bentley, P.K. et al. (1989) Biotechnol. Lett. **11**, 111-4
2. King, A.T. et al. (1990) Biotechnol. Lett. **12**, 29-32
3. Murhammer, D.W. & Gooch, C.F. (1990) Biotechnol. Prog. **6**, 142-8

Cat.No.	Size	EUR
35724.01	100 g	17,00
35724.02	1 kg	53,00

■ TAE buffer (10x)



WARNING

H315-H319 ♦ WGK 2 ♦ HS 38220000

10 x concentrated aqueous solution.

TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 48.46 g/l (0.4 M)

EDTA-Na₂-salt (cat. no. 11280) 3.72 g/l (0.01 M)

Acetic acid 12.01 g/l (0.2 M)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42553.01	1 L	25,00
42553.04	10 L	149,00

■ TAE buffer (50x) molecular biology grade

HS 38220000

50x concentrated aqueous solution.

DNase/RNase not detected. TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 242.3 g/l

EDTA-Na₂ 2H₂O (cat. no. 11280) 18.6 g/l

Acetic acid 60.05 g/l

Cat.No.	Size	EUR
42549.01	1 L	43,00

■ TAPS

see 37194 N-Tris(hydroxymethyl)methyl-3-aminopropane sulfonic acid, page 115, 357

■ Taurocholic acid-Na-salt pure

(Sodium taurocholate)

C₂₆H₄₄NO₇S-Na . aq ♦ M_r 537.7 (anhydrous) ♦

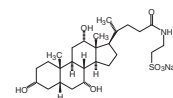
CAS [145-42-6]

EINECS 205-653-7 ♦ WGK 1 ♦ HS 29181930

Storage temperature +2 °C to +8 °C

Purity (TLC) min. 98.0 %

Cholic acid-Na salt max. 1.0 %



Cat.No.	Size	EUR
35779.02	5 g	105,00

■ Taxol®

see 31360 Paclitaxel, page 75, 287

■ TBE buffer (10x)



DANGER

H315-H319-H360DF ♦ WGK 1 ♦ HS 38220000

10 x concentrated aqueous solution.

TBE buffer is widely used for the electrophoresis of nucleic acids and has a higher buffer capacity than TAE. It can be used for DNA and RNA polyacrylamide and agarose gel electrophoresis.

Composition:

Tris (cat. no. 37180) 107.78 g/l (0.89 M)

EDTA-Na₂-salt (cat. no. 11280) 7.44 g/l (0.02 M)

Boric acid (cat. no. 15165) 55.0 g/l (0.89 M)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42557.01	2 x 500 ml	29,50

■ TCEP

see 36970 Tris-(2-carboxyethyl)phosphine hydrochloride, page 114, 150, 252

■ TE Buffer (100x)

HS 38220000

100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/L (1 M)

EDTA-Na₂-salt (cat. no. 11280) 37.22 g/L (0.1 M)

pH 8.0 ± 0.2

Cat.No.	Size	EUR
42554.01	1 L	26,50

■ TE Buffer (100x) pH 8.0 molecular biology grade

WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/L (1 M)

EDTA-Na₂-salt (cat. no. 11280) 37.22 g/L (0.1 M)

pH 8.0 ± 0.2

Cat.No.	Size	EUR
39799.01	100 ml	18,00
39799.02	500 ml	49,00

■ Teepol 610 pract.

(Lensodel PB; Neodol PB)



DANGER

H315-H318 ♦ WGK 2 ♦ HS 34021190

32 % aqueous solution of sodium C9-C11 alkylethersulfates.

A dilution of 1:20 has pH 7.6. For determination of iron in serum (1). Teepol 710 originally used by the author is no longer available. A modification of Lauber's procedure can be supplied on request.

References:

1. Lauber, K. (1965) Z. Klin. Chem. **3**, 96-9

Cat.No.	Size	EUR
35796.01	1 L	40,00
35796.02	5 L	139,00

■ TEMED

see 35925 N,N,N',N'-Tetramethyl-ethylenediamine, page 111, 251

■ TEMED

see 35930 N,N,N',N'-Tetramethyl-ethylenediamine, page 111, 235, 251

■ Testosterone research grade

(4-Androsten-17β-ol-3-one; 17β-Hydroxy-4-androsten-3-one)



C₁₉H₂₈O₂ ♦ M_r 288.4 ♦ CAS [58-22-0]

DANGER

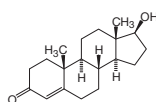
H302-H351-H360DF-H362 ♦

EINECS 200-370-5 ♦ HS 29372900

Ph. Eur.

Assay (UV)

97.0 - 103.0 %



Cat.No.	Size	EUR
35800.02	5 g	37,00

■ Testosterone propionate research grade

C₂₂H₃₂O₃ ♦ M_r 344.5 ♦ CAS [57-85-2]



DANGER

H302-H351-H360 ♦

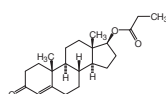
EINECS 200-351-1 ♦ WGK 2 ♦

HS 29372900

Storage temperature +2 °C to +8 °C

Assay (UV)

97.0 - 103.0 %



Cat.No.	Size	EUR
35805.02	5 g	33,00

■ Tetra-n-butylammonium-hydrogensulfate analytical grade

C₁₆H₃₂N⁺HSO₄⁻ ♦ M_r 339.5 ♦ CAS [32503-27-8]



WARNING

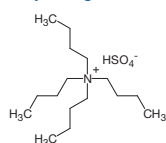
H315-H319 ♦ EINECS 251-068-5 ♦ WGK 2 ♦

HS 29239000

For ion-pair reversed phase chromatography of ribonucleotides.

Assay (titr.)

min. 98.0 %



References:

1. Hoffmann, N.E. & Liao, J.C. (1977) Anal. Chem. **49**, 2231-4

Cat.No.	Size	EUR
35854.01	25 g	37,00

■ Tetracycline-HCl research grade

(Achromycin-HCl)

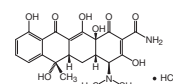
C₂₂H₂₄N₂O₆·HCl ♦ M_r 480.9 ♦ CAS [64-75-5]



WARNING

H315-H319-H335-H361d-H362-H37

3 ♦ EINECS 200-593-8 ♦ WGK 1 ♦ HS 29413000



USP.Bacteriostatic antibiotic isolated from strains of Streptomyces, active against Gram-positive and Gram-negative bacteria and also against intracellular microorganisms like Rickettsia and mycoplasma. Inhibits bacterial protein synthesis by preventing aminoacyl-RNA binding to the A-side of the 30S ribosomal subunit. Sample analysis (1,2). Used for the selection of resistant clones (3,4).

Assay

min. 900 µg/mg

Heavy metals

max. 50 ppm

References:

- Anderson, C.R. et al. (2005) J. Chromatogr. A **1075**, 23-32
- Koesukiwat, U. et al. (2007) J. Chromatogr. A **1140**, 147-56
- Guillaume, G. et al. (2000) FEMS Microbiol. Ecology **32**, 77-85
- Call, D.R. et al. (2003) Antimicrob. Agents Chemother. **47**, 3290-5
- Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8
- Munshi, T. et al. (2013) PLOS ONE 8(3): e60143

Cat.No.	Size	EUR
35866.01	10 g	13,50
35866.02	100 g	49,00

■ N,N,N',N'-Tetramethyl-ethylenediamine for electrophoresis

(TEMED; TD)

C₆H₁₆N₂ ♦ M_r 116.21 ♦ CAS [110-18-9]



DANGER

H225-H302-H314-H332 ♦ EG-Index 612-103-00-3

♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Filled under argon.

Assay (GC)

99.0 %

Cat.No.	Size	EUR
35930.01	10 ml	14,00
35930.02	25 ml	19,00

■ N,N,N',N'-Tetramethyl-ethylenediamine

(TEMED; TD)

C₆H₁₆N₂ ♦ M_r 116.21 ♦ CAS [110-18-9]



DANGER

H225-H302-H314-H332 ♦ EG-Index 612-103-00-3

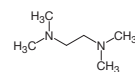
♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Assay (GC)

min. 98.5 %

Cat.No.	Size	EUR
35925.01	100 ml	15,00
35925.02	500 ml	49,00



■ 3,3',5,5'-Tetramethylbenzidine research grade

(TMB)

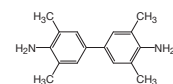
C₁₆H₂₀N₂ ♦ M_r 240.4 ♦ CAS [54827-17-7]



WARNING

H302-H341 ♦ EINECS 259-364-6 ♦

WGK 2 ♦ HS 29215990



Substrate for horseradish peroxidase. More sensitive than ABTS and more stable and less toxic than diaminobenzidine. See also TMB Ready to use ELISA substrate (cat.no. 37068) and TMB ready-to-use substrate for blotting (cat.no. 37070).

Assay (titr.)

98.0 - 102.0 %

Cat.No.	Size	EUR
35926.02	5 g	72,00
35926.03	25 g	254,00

Detergents:

see special chapter at p. 141

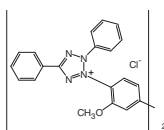
Tetrazolium Blue-chloride research grade

(BT; Blue tetrazolium chloride; 2,2',5,5'-Tetraphenyl-3,3'-(3,3'-dimethoxy-4,4'-biphenylene)-2H,2H'-ditetrazolium chloride)

$C_{40}H_{32}N_8O_2 \cdot Cl_2$ ♦ M_r 727.7 ♦ CAS [1871-22-3]

EINECS 217-488-8 ♦ WGK 2L ♦ HS 32041900

Assay (titr.) min. 94.0 %



Cat.No.	Size	EUR
35950.02	5 g	69,00

Tetrazolium Red

see 37130 Triphenyltetrazolium chloride, page 114, 349

THAM

see 37190 Tris(hydroxymethyl)aminomethane, page 115, 151, 357

Thapsigargin research grade

$C_{34}H_{50}O_{12}$ ♦ M_r 650.8 ♦ CAS [67526-95-8]



WARNING

H302-H332-H341 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Tumor-promoting sesquiterpene lactone. Induces the release of intracellular calcium stores by inhibition of the ER/microsomal Ca^{2+} ATPase.

Assay (HPLC) min. 95.0 %

Assay (TLC) homogeneous

References:

1. Wong, W.E. et al. (1993) *Biochem.* **289**, 71-9
2. Low, A.M. et al. (1993) *Eur. J. Pharmacol.* **230**, 53-62
3. Charlesworth, A. & Rozengurt, E. (1994) *J. Biol. Chem.* **269**, 32528-35
4. Foscett, J.K. & Wong, D.C. (1994) *J. Biol. Chem.* **269**, 31525-32
5. Furuya, Y. et al. (1994) *Cancer Res.* **54**, 6167-75
6. Palmer, F.P. et al. (1994) *Biochim. Biophys. Acta* **1215**, 190-7

Cat.No.	Size	EUR
36000.01	1 mg	85,00

Thiamine-HCl research grade

(Aneurin; Thiaminium chloride-hydrochloride; Vitamin B₁ hydrochloride)

$C_{12}H_{17}ClN_4OS \cdot HCl$ ♦ M_r 337.3 ♦ CAS [67-03-8]

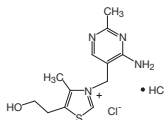
EINECS 200-641-8 ♦ WGK 1L ♦ HS 29362200

Storage temperature +2 °C to +8 °C

Ph. Eur.

Assay, dried (titr.) 98.5 - 101.0 %

Heavy metals (Pb) max. 20 ppm



Cat.No.	Size	EUR
36020.02	100 g	32,00

Thiazolyl blue

see 20395 3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium-bromide, page 37, 320, 345, 370

Thimerosal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 44, 148, 297, 352

2-Thiobarbituric acid analytical grade

(4,6-Dihydroxy-2-thiopyrimidine)

$C_4H_4N_2O_2S$ ♦ M_r 144.2 ♦ CAS [504-17-6]

EINECS 207-985-8 ♦ HS 29335400

Assay min. 99.0 %



Cat.No.	Size	EUR
36108.01	10 g	20,00
36108.02	100 g	64,00

Thioglycerol

see 28637 3-Mercapto-1,2-propanediol, page 66, 248

Thiomersal

see 11340 Ethylmercury thiosalicylic acid-Na-salt, page 44, 148, 297, 352

L-Threonine cell culture grade

Thr; L-2-Amino-3-hydroxybutyric acid)

$C_4H_9NO_3$ ♦ M_r 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ HS 29224985

Assay (titr.) min. 99.0 %

Endotoxin ≤ 6.0 E.U./g

Loss on drying max. 0.5 %

Ammonium (NH_4) max. 200 ppm

Chloride (Cl) max. 200 ppm

Sulfate (SO_4) max. 300 ppm

Heavy metals (as Pb) max. 10 ppm

Iron (Fe) max. 20 ppm

Cat.No.	Size	EUR
47216.01	25 g	15,00
47216.02	100 g	30,00
47216.03	500 g	103,00

L-Threonine research grade

(Thr; L-2-Amino-3-hydroxybutyric acid)

$C_4H_9NO_3$ ♦ M_r 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
36382.02	25 g	14,00
36382.03	100 g	28,50

**Thrombin from bovine plasma min. 1000 units/mg protein** lyophil.

(Coagulation Factor IIa)

EC 3.4.21.5 ♦ M_r ca. 37 000 ♦ CAS [9002-04-4]



WARNING

H315-H319-H335 ♦ EINECS 232-648-7 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serine protease that activates factor XIII and converts fibrinogen to fibrin by selectively cleaving Arg-Gly bonds.

Suitable for removal of a tag, e.g. GST-tag, from a recombinant fusion protein containing an accessible thrombin recognition sequence.

Unit definition: 1 NIH unit clots a standard fibrinogen solution in 15 sec. at 37 °C (1).

Extraneous activities: very low fibrinolytic activity

References:

1. Baughman, D. J. (1970) *Methods Enzymol.* **19**, 145-57

Cat.No.	Size	EUR
36402.01	250 U	25,00
36402.02	1.000 U	69,00
36402.03	5.000 U	270,00

Thymidine

see 18600 2'-Deoxythymidine, page 34

TMB

see 35926 3,3',5,5'-Tetramethylbenzidine, page 111, 223, 348

TMB ready-to-use substrate for blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component TMB substrate for detection of horseradish peroxidase in western, northern, southern and dot blots. The reaction product is a blue precipitate. Contains a proprietary enhancer and non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
37070.01	100 ml	58,00

TMB ready to use ELISA substrate

WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

One bottle reagent: contains 3,3',5,5'-Tetramethylbenzidine, buffer and peroxide in a single convenient, ready-to-use solution recommended for the detection of horseradish peroxidase in ELISA assays. Develops a deep blue colour that turns bright yellow when the reaction is stopped. Light sensitive. Do not freeze.

Cat.No.	Size	EUR
37068.01	100 ml	69,00

Tobramycin sulfate research grade

(C₁₈H₃₇N₅O₉)₂ × 5H₂SO₄ ♦ M_r 1425.45 ♦ CAS [49842-07-1]



WARNING

H361d ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

USP. Potency: 634 - 739 µg Tobramycin/mg substance. Amino glycoside antibiotic; similar in structure and action to gentamycin sulfate and kanamycin sulfate.

Heavy metals (Pb) max. 30 ppm

References:

- Giuliano, R.A. et al. (1986) Pharmacol. Experimental Therapeutics **236**, 470-5
- Petitou, M. (1994) Synthetic Oligosaccharides, ed. P. Kovac, vol. **560**, chapter 2, p. 19-35. ACS Symposium Series
- Higuchi, M. et al. (1999) Acta Haematol. **102**, 22-30
- Randell, S.H. et al. (2011) Methods in Molecular Biology vol. **742** (Cystic Fibrosis), 285-310
- Fulcher, M.L. a. Randell, S.H. (2013) Methods in Molecular Biology vol. **945** (Epithelial Cell Culture) 109-21

Cat.No.	Size	EUR
36562.01	250 mg	52,00

α-Toluenesulfonyl fluoride

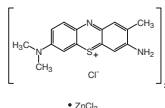
see 32395 Phenylmethylsulfonyl fluoride, page 80, 139, 353

Toluidine Blue O salt

(Basic Blue 17; 2-Amino-7-dimethylamino-3-methylphenothiazinium chloride)

C₁₅H₁₆ClN₃S ♦ M_r 305.8 ♦ CAS [92-31-9]

EINECS 202-146-2 ♦ WGK 2L ♦ HS 29349990



Methylhomologue of Azure A. For RNA staining and RNase detection in electrophoresis (1). Stain for oligodeoxyribonucleotides (2). Stain for acidic mucopolysaccharides (proteoglycans) (3) and RNA (4).

Water (KF) max. 10.0 %
A 1 cm/0.001 % in water λ max. min. 0.8
λ max. 0.001 % in water 622 - 638 nm

References:

- Wilson, C.W. (1969) Anal. Biochem. **31**, 506-11
- Elson, E. & Jovin, T.M. (1969) Anal. Biochem. **27**, 193-204
- Rennert, O.M. (1967) Nature **213**, 1133
- Konings R.N.H. & Bloemendal, H. (1965) Eur. J. Biochem. **7**, 165-73

Cat.No.	Size	EUR
36693.02	25 g	39,00

Toluyene Red

see 30305 Neutral Red, page 72, 372

Toronto-starch

see 35370 Starch (Smithies), page 108, 250

Nα-p-Tosyl-L-lysine chloromethyl ketone

see 17013 L-1-Chloro-3-tosylamido-7-amino-2-heptanone, p. 25, 138, 351

Nα-p-Tosyl-L-phenylalanine chloromethylketone

see 17016 L-1-Chloro-3-tosylamido-4-phenyl-2-butanone, p. 25, 138, 351

Towbin Buffer for Western Blotting 10x concentrate

HS 38220000

Supplied as 10 x concentrate (0.25 M Tris and 1.92 M glycine in aqueous solution).

Working buffer: dilute 100 ml of 10X concentrate with 200 ml methanol and 700 ml distilled water.

Cat.No.	Size	EUR
42558.02	1 L	23,00

TPA

see 32496 Phorbol (12-myristoyl-13-acetyl), page 80, 322

TPCK

see 17016 L-1-Chloro-3-tosylamido-4-phenyl-2-butanone, p. 25, 138, 351

TPNH

see 30316 β-Nicotinamide adenine dinucleotide phosphate reduced ·Na₄-salt, page 72, 342

Transferrin human (Apo) lyophil.

(Siderophilin)

M_r ca. 77 000

HS 35040090

Storage temperature -15 °C to -25 °C

Iron-poor, iron (Fe) max. 0.003 %. Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Protein content min. 98.0 %

References:

- Carver, F.J. & Frieden, E. (1978) Biochemistry **17**, 167-72

Cat.No.	Size	EUR
36760.01	50 mg	57,00

Transferrin human (Holo) lyophil., pasteurized

(Siderophilin)

M_r ca. 80 000 ♦ CAS [11096-37-3]

HS 35040090

Storage temperature -15 °C to -25 °C

Iron saturated; iron (µg Fe/g protein): min. 1200.

Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Purity (CAE) min. 98.0 %

Cat.No.	Size	EUR
36756.01	25 mg	50,00
36756.02	100 mg	145,00

Trasylol®

see 13718 Aprotinin from bovine lung, page 14, 137, 350

D-Trehalose analytical grade

(α-D-Glucopyranosyl-α-D-glucopyranoside)

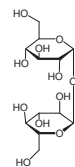
C₁₂H₂₂O₁₁ · 2H₂O ♦ M_r 378.3 ♦ CAS [6138-23-4]

EINECS 202-739-6 ♦ WGK 1 ♦ HS 29400000

Assay (HPLC) min. 99.0 %

[α]_D²⁰ °C/D (c=7 in water) +176 ° to +180 °

Cat.No.	Size	EUR
36770.02	25 g	32,00
36770.03	100 g	102,00



Tricaine

see 12396 3-Aminobenzoic acid ethyl ester-methanesulfonate, page 11

Trichloroacetic acid analytical grade

C₂HCl₃O₂ ♦ M_r 163.4 ♦ CAS [76-03-9]



ANGER

H314-H410 ♦ EG-Index 607-004-00-7

♦ GGVSE/ADR 8 II UN1839 ♦ IATA 8 II UN1839 ♦

EINECS 200-927-2 ♦ WGK 2L ♦ HS 29154000

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
36910.01	100 g	15,00
36910.03	500 g	38,00



Trichloroacetic acid, 20 % solution



ANGER

H314-H335-H336-H412 ♦ GGVSE/ADR 8 III UN2564 ♦

IATA 8 III UN2564 ♦ WGK 2S ♦ HS 38220000

Aqueous solution. TCA (cat. no. 36910): 200 g/L

Cat.No.	Size	EUR
36913.01	500 ml	30,00
36913.02	1 L	45,00

■ **Tricine**

see 37195 N-Tris(hydroxymethyl)methylglycine, page 116, 357

■ **Trimethoprim research grade**

(5-(3,4,5-Trimethoxybenzyl)-2,4-diaminopyrimidine)
 $C_{14}H_{18}N_4O_3$ ♦ M_r 290.32 ♦ CAS [738-70-5]

EINECS 212-006-2 ♦ WGK 1 ♦ HS 29335995

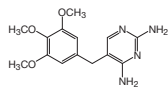
Storage temperature +2 °C to +8 °C

Ph. Eur. Antibacterial substance; activity in vitro (1). Simultaneous detection with sulfamethazine by HPLC (2). Inhibitor of the bacterial enzyme dihydrofolate reductase.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 20 ppm

References:

1. Digrañes, A. et al. (1985) Chemotherapy **31**, 466-71
2. Torel, J. et al. (1985) J. Chromatogr. **323**, 447-50



Cat.No.	Size	EUR
37049.01	5 g	41,00

■ **Trioctylmethylammonium chloride pract.**

(Methyltrioctyl ammonium chloride; Adogen 464; Aliquat® 336)



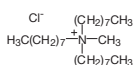
$C_{25}H_{54}ClN$ ♦ M_r 404.2 ♦
 CAS [5137-55-3]

DANGER

H301-H315-H318-H410 ♦ GGVSE/ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810
 ♦ EINECS 225-896-2 ♦ WGK 3S ♦ HS 29239000

Assay min. 85.0 %

Aliquat is a registered trademark of Cognis Corporation



Cat.No.	Size	EUR
37076.01	100 ml	23,00
37076.02	500 ml	76,00

■ **Triphenyltetrazolium chloride analytical grade**

(TTC; Tetrazolium Red; 2,3,5-Triphenyl-2H-tetrazolium chloride)

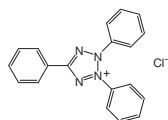


$C_{19}H_{15}ClN_4$ ♦ M_r 334.79 ♦ CAS [298-96-4]

WARNING

H315-H319-H335 ♦ EINECS 206-071-6 ♦
 HS 29339980

Assay min. 98.0 %



Cat.No.	Size	EUR
37130.03	10 g	27,00
37130.02	50 g	91,00

■ **TRIS**

see 37190 Tris(hydroxymethyl)aminomethane, page 115, 151, 357

■ **Tris-(2-carboxyethyl)phosphine hydrochloride**

(TCEP)
 $C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ WGK 1 ♦ HS 29420000

Storage temperature +2 °C to +8 °C

Water-soluble and odorless reagent for selective and fast reduction of disulfides. Does not react with other functional groups of proteins. Unreactive towards many common alkylating reagents, so reductions have been carried out simultaneously with alkylations. More stable and effective than DTT. The strength of the phosphorus-oxygen bond makes the reaction irreversible. Dilute solutions of TCEP (1 mM) react rapidly at room temperature. Suitable also in mass spectrometry applications.

Assay (TLC) min. 99.0 %

References:

1. Kirkley, T.L. (1989) Anal. Biochem. **180**, 231-36
2. Burns, J.A. (1991) J. Org. Chem. **56**, 2648-50
3. Han, J. a. Han, G.Y. (1994) Anal. Biochem. **220**, 5-10

Cat.No.	Size	EUR
36970.01	1 g	50,00
36970.02	5 g	185,00
36970.03	10 g	325,00

■ **Tris-(2-carboxyethyl)phosphine hydrochloride**

electrophoresis grade

$C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ HS 29420000

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. More stable and effective than DTT. Tested for use in sample buffers for SDS-PAGE.

Assay (TLC) min. 99.0 %

Cat.No.	Size	EUR
36971.01	1 g	52,00
36971.02	5 g	190,00

■ **Tris-Glycine/SDS sample buffer**

see 42527 SERVA Tris-Glycine/SDS Sample Buffer, page 97, 250

■ **Tris-MOPS/SDS running buffer**

see 42561 SERVA Tris-MOPS/SDS Electrophoresis Buffer, page 97, 250

■ **Tris-Tricine/SDS running buffer**

see 42552 SERVA Tris-Tricine/SDS Electrophoresis Buffer, page 97, 250

■ **Tris buffer pH 7.5, 1 M solution molecular biology grade**

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37180) 121.14 g/l
 pH (20 °C, adjusted with HCl) 7.5 ± 0.1

Cat.No.	Size	EUR
39791.01	1 L	44,50

■ **Tris buffer pH 8.0, 1 M solution molecular biology grade**

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37186) 121.14 g/l
 pH (20 °C, adjusted with HCl) 8.0 ± 0.1

Cat.No.	Size	EUR
39792.01	1 L	44,50

■ **Tris buffer pH 8.8, 1 M solution molecular biology grade**

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37186) 121.14 g/l
 pH (20 °C, adjusted with HCl) 8.8 ± 0.1

Cat.No.	Size	EUR
39794.01	1 L	44,50

■ **2,4,6-Tris(dimethylaminomethyl)phenol pract.**

(EPON accelerator DMP-30; ARALDITE® Accelerator DY 964)



$C_{15}H_{27}N_3O$ ♦ M_r 265.4 ♦ CAS [90-72-2]

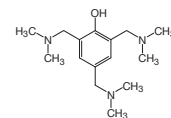
WARNING

H302-H315-H319 ♦ EG-Index 603-069-00-0 ♦

EINECS 202-013-9 ♦ WGK 1L ♦ HS 29215990

Accelerator for epoxy polymerization.

Density (20 °C) 0.96 - 1.0



Cat.No.	Size	EUR
36975.01	100 ml	15,00
36975.03	250 ml	29,00

Tris(hydroxymethyl)aminomethane electrophoresis grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ HS 29221985

Ultrapure quality, tested for use in electrode buffers for PAGE and in transfer buffers for Western blots.

Assay (titr.)	min. 99.9 %
A 1 cm 10 % in water	
260 nm	max. 0.15
280 nm	max. 0.15
430 nm	max. 0.07
Heavy metals (Pb)	max. 1 ppm
pH (5 % in water)	10.0 – 11.5

Cat.No.	Size	EUR
37181.01	500 g	33,00
37181.02	1 kg	48,00
37181.03	2,5 kg	97,00

Tris(hydroxymethyl)aminomethane analytical grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Buffer quality for biological and enzymatic research.

Assay (titr.)	min. 99.9 %
A 1 cm/10 % in water	
235 nm	max. 0.60
260 nm	max. 0.15
280 nm	max. 0.15
430 nm	max. 0.07
Heavy metals (Pb)	max. 1 ppm
pH (5 % in water)	10.0 – 11.5

Cat.No.	Size	EUR
37180.02	100 g	15,00
37180.03	500 g	35,00
37180.05	1 kg	59,00
37180.04	2,5 kg	135,00



Tris(hydroxymethyl)aminomethane molecular biology grade

(TRIS)
 $C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

DNase, RNase, Protease not detected.

Assay (titr.)	min. 99.9 %
Heavy metals (Pb)	max. 1 ppm
Iron	max. 1 ppm
Arsenic (As)	max. 1 ppm
Magnesium (Mg)	max. 1 ppm

Cat.No.	Size	EUR
37186.01	100 g	18,00
37186.02	500 g	49,00
37186.03	1 kg	77,00
37186.04	2,5 kg	186,00

Tris(hydroxymethyl)aminomethane research grade

(TRIS; THAM; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Suitable for preparative purposes and for chromatography.

Assay (titr.)	min. 99.0 %
A 1 cm/40 % in water	
290 nm	max. 0.2
pH (5 % in water)	10.0 – 11.5
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
37190.01	250 g	17,00
37190.02	1 kg	44,00
37190.03	5 kg	187,00



Tris(hydroxymethyl)aminomethane-hydrochloride

molecular biology grade

(Tris-hydrochloride)

$C_4H_{11}NO_3 \cdot HCl$ ♦ M_r 157.6 ♦ CAS [1185-53-1]

WARNING
H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

DNase/RNase Protease not detected.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (as Pb)	max. 10 ppm
pH 10 % in water	3.5 – 5.0

Cat.No.	Size	EUR
39787.01	500 g	95,00

Tris(hydroxymethyl)aminomethane-hydrochloride

research grade

(Tris-hydrochloride)

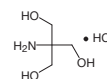
$C_4H_{11}NO_3 \cdot HCl$ ♦ M_r 157.6 ♦ CAS [1185-53-1]

WARNING
H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

For enzymology

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	3.5 – 5.0

Cat.No.	Size	EUR
37192.01	100 g	21,00
37192.02	500 g	77,00
37192.03	2,5 kg	310,00



N-Tris(hydroxymethyl)methyl-3-aminopropane sulfonic acid analytical grade

(TAPS)

$C_7H_{17}NO_6S$ ♦ M_r 243.28 ♦ CAS [29915-38-6]

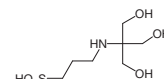
EINECS 249-954-1 ♦ WGK 1 ♦ HS 29221985

MP 238 – 245 °C (dec.). pKa 20 = 8.4. Buffering substance.

Assay (titr.)	min. 99 %
A 1 cm/10 % in water	
230 nm	max. 0.2
260/280 nm	max. 0.07
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	4.5 – 6.5

References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68



Cat.No.	Size	EUR
37194.03	100 g	39,00

Find Centrifuges,
Thermoshakers and
Aspiration Systems at p. 260

■ Tris(hydroxymethyl)methylglycine electrophoresis grade

(Tricine)

 $C_6H_{13}NO_5$ ♦ M_r 179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ HS 29221985

In the tricine gel system developed by Schaeffer and von Jagow (1), tricine replaces glycine in the running buffer. This results in higher resolution of low molecular weight proteins and of smaller peptides.

Ultrapure quality, tested for use in electrode buffers for PAGE.

Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.04
280 nm	max. 0.02
Heavy metals (Pb)	max. 5 ppm
pH (10 % in water)	4.6 – 5.2

References:

1. Schagger, H & von Jagow, G. V. (1987) Anal. Biochem. **166**, 368 - 379

Cat.No.	Size	EUR
37196.01	100 g	40,00
37196.02	500 g	143,00

■ N-Tris(hydroxymethyl)methylglycine analytical grade

(Tricine)

 $C_6H_{13}NO_5$ ♦ M_r 179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ WGK 1 ♦ HS 29221985

MP 179 - 187 °C; pKa 20 = 8.15. Buffering substance (1).

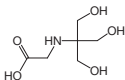
Non-toxic substitute for barbital (2).

Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.04
280 nm	max. 0.02
pH 10 % in water	4.6 - 5.2
Heavy metals (Pb)	max. 5 ppm
Iron (Fe)	max. 5 ppm

References:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77
2. Monihony, J.F. et al. (1978) Clin. Chem. **24**, 1825-7

Cat.No.	Size	EUR
37195.01	25 g	17,00
37195.02	100 g	42,00
37195.03	500 g	150,00



■ Triton® X-100

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

HLB 13.5. For the turbidimetric determination of phosphate

(1). Can be used in place of Nonidet NP-40. One of the most frequently used surfactants for the isolation, purification and analysis of membrane components. Suitable for solubilisation of hydrophobic proteins prior to Blue Native PAGE.

Water (KF)	max. 1.0 %
A 1 cm /320 nm 1 % in water	max. 0.4
A 1 cm /360 nm 1 % in water	max. 0.04

® Registered trademark of Union Carbide.

References:

1. Eibl, H. & Lands, W.E.M. (1969) Anal. Biochem. **30**, 51-7
2. See, Y.P. & Fitt, P.S. (1972) Anal. Biochem. **49**, 430-35
3. Campoy, F.J. et al. (1989) Biochem. Soc. Trans. **17**, 676-7
4. Gonzales-Manas, J.M. et al. (1990) Eur. J. Biochem. **188**, 673-8
5. Bayens, W.R.G. et al. (1990) Anal. Chim. Acta **234**, 187-92
6. Krause, F. (2006) Electrophoresis **27**, 2759-81

Cat.No.	Size	EUR
37240.01	500 g	16,00
37240.02	5 kg	79,00

■ Triton® X-100 molecular biology grade

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

DNase, RNase, Protease, Phosphatase not detected.

HLB 13.5.

® Registered trademark of Union Carbide

Cat.No.	Size	EUR
39795.01	50 ml	20,50
39795.02	250 ml	37,50

■ Triton® X-100 for scintillation techniques

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER
H302-H318 ♦ WGK 2 ♦ HS 34021300

HLB 13.5.

Water (KF)	max. 1.0 %
A 1 cm /320 nm 1 % in water	max. 0.4
A 1 cm /360 nm 1 % in water	max. 0.04

® Registered trademark of Union Carbide

Cat.No.	Size	EUR
37238.01	500 g	18,00
37238.02	2,5 kg	62,00

■ Trometamol

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

■ Tromethamine

see 37180 Tris(hydroxymethyl)aminomethane, page 115, 151, 225, 357, 367

■ Trypaflavine HCl

see 10671 Acriflavine-HCl, page 3, 369

■ Trypsin 1:250 from bovine pancreas lyophil.

3.4.21.4 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

USP. Serin protease mixture suitable for cell culture. Contains chymotrypsin and non-proteolytic activities. Trypsin 1:250 is a special blend of enzymes designed to maintain maximum cell viability during gentle dissociation.

Customary concentration for use: 250 mg/100 ml, pH 7 – 8.

Trypsin assay: 250 NF/USP U/mg

Total aerobic count plate	none detectable
Moulds and yeasts	<15 /g
Bacterial count	

Salmonella, *Staph. aureus*, *Ps.*

aeruginosa,

Enterococcus sp.

Absent in 10 g material

Unit definition: That amount of enzyme that causes hydrolysis of BAEE (benzoylarginine ethyl ester) such that the increase of light absorbance at 253 nm is 0.003 per minute.

Cat.No.	Size	EUR
37289.01	25 g	55,00
37289.02	100 g	158,00

■ Trypsin from porcine pancreas ca. 60 U/mg

2 x cryst. lyophil. salt-free

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-α-benzoyl-L-arginine ethyl ester (BAEE) per minute at 25 °C, pH 8.0.

Extraneous activities: max. 0.25 % chymotrypsin.

Substrates and Inhibitors for Trypsin: see cat.no. 37260

Cat.No.	Size	EUR
37291.02	250 mg	25,00
37291.03	1 g	71,00

■ Trypsin inhibitor from bovine lung

see 13718 Aprotinin from bovine lung, page 14, 137, 350

■ Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.

M_r ca. 22 000 ♦ CAS [9035-81-8]

EINECS 232-906-9 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Salt-free. Trypsin is inhibited in a molar ratio of 1:1. Inhibits as well chymotrypsin (2), plasmin, kallikrein, thrombin and other proteolytic enzymes.

Unit definition: 1 IU (inhibitor units) inhibits 1 U trypsin as defined by cleavage of 1 μmole BAEE (N-benzoyl-L-arginine ethyl ester) per minute.

References:

1. Rachis, J.J. et al. (1962) Arch. Biochem. Biophys. **98**, 471-8
2. Bidlingmeyer, U. et al. (1972) Biochemistry **11**, 3303-10

Cat.No.	Size	EUR
37329.01	250 mg	53,00

■ Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA

WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Suitable for efficient and gentle detachment of adherent cells from culture surfaces, as well as for tissue digestion.

Trypsin: 0.5 mg/ml (0.05 %)

EDTA: 0.22 mg/ml (0.02 %)

Solvent: PBS, without Ca²⁺ and Mg²⁺

Endotoxin: ≤10 EU/ml

SERVA Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA is a solution containing trypsin and EDTA in phosphate buffered saline (PBS) without Ca²⁺ and Mg²⁺. It is a clear and colourless solution that is 0.2 μm filtered and thus ready to use. Each lot is tested for pH-value, osmolality, and sterility. Efficient detachment and high cell viability could be shown for several adherent cell types.

The trypsin powder is derived from porcine pancreas and tested for porcine parvovirus (PPV), mycoplasma and endotoxin. SERVA Trypsin NB Cell Culture Grade complies to trypsin 1:250.

Cat.No.	Size	EUR
37297.01	100 ml	9,30
37297.02	10 x 100 ml	88,00

■ Trypsin NB from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Trypsin NB is derived from porcine pancreas of known origin. It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline. Trypsin NB is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≥ 40 μkat/g (Ph. Eur.)

Microbiological examination:

Total aerobic microbial count (TAMC): status

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions.

The activity is stated in microkatal; 1 μkat hydrolyses 1 μmol substrate per second. 1 μkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size	EUR
37294.01	10 g	24,00
37294.02	50 g	62,00
37294.03	250 g	239,00

■ Trypsin NB GMP Grade from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Trypsin NB is derived from porcine pancreas of known origin and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline.

Trypsin NB GMP Grade is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≤ 40 μkat/g (Ph. Eur.)

Loss on drying: ≤ 5.0 %

Microbiological examination:

Total aerobic microbial count (TAMC): ≤10⁴ CFU/g

Total yeast and mould count (TYMC): ≤10² CFU/g

Absence of *Escherichia coli*: must comply

Absence of *Salmonella*: must comply

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions.

The activity is stated in microkatal; 1 μkat hydrolyses 1 μmol substrate per second. 1 μkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size	EUR
37296.02	5 kg	inquire

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

■ Trypsin NB Premium Grade, MS approved from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Approved for use in in-gel digestion and mass spectrometry analysis. Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Premium Grade, MS approved is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues of trypsin results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Premium Grade, MS approved is purified by chromatography. No chymotryptic activity is detectable. Every lot is approved for use in in-gel digestion and mass spectrometry analysis. Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37284.01	4 x 25 µg	78,00

■ Trypsin NB Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Sequencing Grade, modified, is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37283.01	4 x 25 µg	59,00

■ Tryptone from casein pancreatic

HS 35040090

Total nitrogen (TN)	12.5 – 13.5 %
Amino nitrogen (AN)	3.5 – 4.5 %
AN/TN x 100	26 – 37
pH (2 % solution)	6.5 – 7.5

Cat.No.	Size	EUR
48647.01	250 g	35,00
48647.02	1 kg	95,00

■ Tryptone Type-I pancreatic

HS 35040090

Prepared by pancreatic digest of milk protein casein. Very rich source of amino nitrogen.

Used in the production of various general media such as Tryptone Water etc. and as well in the production of sterility testing media and various diagnostic media.

Total nitrogen (TN)	min. 12.0 %
Amino nitrogen	min. 3.5 %
Loss on drying	max. 5.0 %
Ash	max. 12.0 %
pH (1 % solution)	6.2 – 7.2
Sodium chloride	max. 5.0 %

Cat.No.	Size	EUR
48660.01	250 g	65,00
48660.02	1 kg	210,00

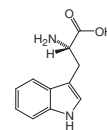
■ L-Tryptophan research grade

(Trp; L-2-Amino-3-(indolylepropionic acid))
C₁₁H₁₂N₂O₂ ♦ M_r 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Ammonium	max. 200 ppm
Iron (Fe)	max. 20 ppm
Non animal origin	



Cat.No.	Size	EUR
37422.02	25 g	21,00
37422.03	100 g	63,00
37422.04	500 g	262,00

■ L-Tryptophan cell culture grade

(Trp; L-2-Amino-3-(indolylepropionic acid))
C₁₁H₁₂N₂O₂ ♦ M_r 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH ₄)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO ₄)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 20 ppm

Cat.No.	Size	EUR
47217.01	25 g	22,00
47217.02	100 g	65,00
47217.03	500 g	270,00

■ TTC

see 37130 Triphenyltetrazolium chloride, page 114, 349

■ Tunicamycin from *Streptomyces chartreusis*

M_r ca. 840 ♦ CAS [11089-65-9]



DANGER

H300-H330-H373 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Mixture of homologue nucleoside antibiotics. Consists of one residue each of uracil, a C₁₁-aminodeoxy- dialdose (tunicamine), N-acetyl glucosamine and a fatty acid. The various tunicamycins differ from each other in the chain length of their fatty acid component.

Our preparation contains mainly isomers A, B, C, and D whose fatty acid component contain 15, 16, 17, and 18 C-atoms, respectively. Tunicamycin is active against Gram-positive bacteria, yeast, fungi, and viruses. Inhibits N-linked glycosylation and blocks the formation of N-glycosidic protein carbohydrate linkage; inhibits the first step in the lipid-linked saccharide pathway, i.e. the formation of dolichylpyrophosphoryl-GlcNAc. Soluble in DMF and DMSO.

Protect from light. Keep under argon.

Assay (HPLC) max. 98.0 %

References:

1. Takatsuki, A. et al. (1971) J. Antibiot. **24**, 215
2. Tkacz, J.S. & Lampén, O. (1975) Biochem. Biophys. Res. Commun. **65**, 248
3. Ericson, M. et al. (1977) J. Biol. Chem. **252**, 7431
4. Takatsuki, A. et al. (1977) Agric. Biol. Chem. **41**, 2307-9
5. Elbein, A.D. (1981) Trends Biochem. Sci. **6**, 219-21
6. Elbein, A.D. (1987) Methods Enzymol. **138**, 661-709

Cat.No.	Size	EUR
37467.01	5 mg	88,00
37467.02	10 mg	150,00

■ Tween® 20 molecular biology grade

(Polysorbate 20; Polyoxyethylene sorbitan monolaurate, n ca. 20)
M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 (NLP) ♦ WGK 1L ♦ HS 34021300

DNase/RNase not detected. HLB 16.7.

Heavy metals max. 10 ppm
Water max. 3.0 %

® Registered trademark of ICI, Ltd.

Cat.No.	Size	EUR
39796.01	100 ml	23,50

■ Tween® 20 pure

(Polysorbate 20; Polyoxyethylene sorbitan monolaurate, n ca. 20)
M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP. HLB 16.7. Non-ionic surfactant that effectively suppresses unspecific reactions between antibodies, antigens and other molecules (1, 2). Also used as a solubilizer in membrane chemistry (3) and for density centrifugation of viruses (4).

Free dioxan max. 10 ppm
Free ethylene oxide max. 1 ppm
Heavy metals (Ph. Eur.) max. 10 ppm
Non animal origin

® Registered trademark of ICI, Ltd.

References:

1. Thean, E.T. & Toh, B.H. (1989) Anal. Biochem. **177**, 256-8
2. Tovey, E.R. et al. (1989) Electrophoresis **10**, 243-9
3. Lund, S. et al. (1989) J. Biol. Chem. **264**, 4907-15
4. Boeye, A. & DeRees, A. (1989) Arch. Virol. **107**, 77-84

Cat.No.	Size	EUR
37470.01	500 g	20,00
37470.02	5 kg	120,00

■ Tween® 80 pure

(Polysorbate 80; Polyoxyethylene sorbitan monooleate, n ca. 20)
M_r ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. HLB 15.0; tested for use in tissue culture.

Density (25 °C) 1.06 - 1.09
Ethylene oxide value max. 1 ppm
1,4-dioxane content max. 10 ppm
Heavy metals max. 10 ppm
Non animal origin

® Registered trademark of ICI, Ltd.

References:

1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
37475.01	500 g	22,00
37475.02	5 kg	126,00

■ Tylosine-tartrate solution (100x) sterile filtered

(Anti-PPLO-agent)
HS 38220000

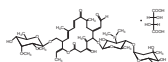
Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic with large lactone ring. Inhibits bacterial protein synthesis at the ribosomal 50S-subunit. Used for the inhibition of mycoplasma in cell culture. Enhances immune response in chicken.

References:

1. Stewart, S.M. et al. (1969) J. Med. Microbiol. **2**, 287-92.
2. Baba, T. et al. (1998) Poult. Sci. **77**, 1306-11
3. Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8

Cat.No.	Size	EUR
47988.01	25 ml	23,00



■ L-Tyrosine cell culture grade

(Tyr; L-2-Amino-3-(4-hydroxyphenyl)-propionic acid; L-3-(4-Hydroxyphenyl)-alanine)

C₉H₁₁NO₃ ♦ M_r 181.2 ♦ CAS [60-18-4]

EINECS 200-460-4 ♦ HS 29224985

Assay (titr.) min. 99.0 %
Endotoxin ≤ 40.0 E.U./g
Loss on drying max. 0.5 %
Ammonium (NH₄) max. 200 ppm
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Heavy metals (as Pb) max. 10 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47218.01	100 g	40,00
47218.02	500 g	170,00

■ L-Tyrosine analytical grade

(Tyr; L-2-Amino-3-(4-hydroxyphenyl)-propionic acid; L-3-(4-Hydroxyphenyl)-alanine)

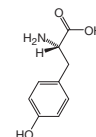
C₉H₁₁NO₃ ♦ M_r 181.2 ♦ CAS [60-18-4]

EINECS 200-460-4 ♦ WGK 1L ♦ HS 29224985

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %
Chloride (Cl) max. 200 ppm
Sulfate (SO₄) max. 300 ppm
Ammonium max. 200 ppm
Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
37540.02	25 g	18,00
37540.03	100 g	35,00



■ Uranyl acetate-2H₂O research grade

(CH₃COO)₂UO₂·2H₂O ♦ M_r 424.2 ♦ CAS [6159-44-0]



DANGER

H300-H330-H373-H411 ♦ MAK/TRK 0,25 mg/m³

calculated as uran ♦ EG-Index 092-002-00-3 ♦

GGVSE/ADR 7 UN2910 ♦ IATA 7 UN2910 ♦ EINECS 629-550-5 ♦ WGK 3L ♦ HS 28443019

For determination of unbound radioactive iodine in radiolabelled glycoproteins. For positive staining in electron microscopy.

Assay (titr.) min. 98.0 %
Chloride (Cl) max. 0.003 %
Lead (Pb) max. 0.002 %

Export restricted. Please ask for details.

References:

1. Boratynski, J. (1987) Anal. Biochem. **160**, 35-8

Cat.No.	Size	EUR
77870.02	5 g	120,00
77870.01	25 g	525,00

■ Urea analytical grade

(Carbamide; Carbonyl diamide)

CH₄N₂O ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

Ph.Eur., USP.

Assay (from N) 99.0 - 100.5 %
Heavy metals (Pb) < 10 ppm

Cat.No.	Size	EUR
24524.02	1 kg	18,00
24524.03	5 kg	47,00



■ **Urea** electrophoresis grade

(Carbamide; Carbonyl diamide)
 $\text{CH}_4\text{N}_2\text{O}$ ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ HS 29241900

For complete solubilization and unfolding of proteins, urea is included in the sample solution for 2 D-PAGE at a concentration of at least 8 M. It is also used to denature nucleic acids in sequencing gels. Application-tested quality.

Assay (from N) 99.0 - 100.5 %
 Heavy metals < 10 ppm

Cat.No.	Size	EUR
24525.01	250 g	17,00
24525.02	1 kg	32,00

■ **Urea** molecular biology grade

(Carbamide; Carbonyl diamide)
 $\text{CH}_4\text{N}_2\text{O}$ ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected

Assay (from N) 99.0 - 100.5 %
 A 1 cm/8 M in water
 260 nm < 0.15
 280 nm < 0.1
 Heavy metals (as Pb) < 10 ppm
 Iron (Fe) max 0.5 ppm

Cat.No.	Size	EUR
39305.01	500 g	21,50

■ **Urease from jack bean min. 220 U/mg** lyophil.

(Urea amidohydrolase)

EC 3.5.1.5 ♦ M_r ca. 545 000 ♦ CAS [9002-13-5]



DANGER

H334 ♦ EINECS 232-656-0 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For the determination of urea (1).

Unit definition: 1 U catalyzes the formation of 1 μmole ammonia per minute at 25 °C, pH 8.0 from urea, determined in a coupled reaction with GLDH (2).

Activity in other units: If the unit of activity is defined in terms of 1 μmole urea decomposed per minute, this preparation would contain at least 90 units/mg.

References:

- Kerscher, L. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 8, p. 444-53
- Kaltwasser, H. & Schlegel, H.G. (1966) Anal. Biochem. **16**, 132-8

Cat.No.	Size	EUR
37799.01	100 mg	22,00
37799.02	250 mg	46,00
37799.03	1 g	150,00

■ **Uridine-5'-triphosphate- Na_3 -salt** research grade

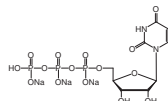
(UTP)

$\text{C}_9\text{H}_{12}\text{N}_2\text{O}_{15}\text{P}_3\cdot\text{Na}_3\cdot 2\text{H}_2\text{O}$ ♦ M_r 586.2 ♦ CAS [19817-92-6]

EINECS 243-347-5 ♦ HS 29199000

Storage temperature -15 °C to -25 °C

Assay (HPLC) min. 91.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
37960.01	250 mg	58,00
37960.02	1 g	190,00

■ **UTP**

see 37960 Uridine-5'-triphosphate- Na_3 -salt, page 120, 343

■ **L-Valine** cell culture grade

Val; L-2-Amino-3-methylbutyric acid; L-2-Amino-isovaleric acid)

$\text{C}_5\text{H}_{11}\text{NO}_2$ ♦ M_r 117.15 ♦ CAS [72-18-4]

EINECS 200-773-6 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.5 %
 Ammonium (NH_4) max. 200 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47219.01	25 g	16,00
47219.02	100 g	31,00
47219.03	500 g	115,00

■ **L-Valine** research grade

(Val; L-2-Amino-3-methylbutyric acid; L-2-Amino-isovaleric acid)

$\text{C}_5\text{H}_{11}\text{NO}_2$ ♦ M_r 117.15 ♦ CAS [72-18-4]

EINECS 200-773-6 ♦ WGK 1L ♦ HS 29224985

Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO_4) max. 300 ppm
 Ammonium max. 200 ppm
 Iron (Fe) max. 10 ppm
 Non animal origin



Cat.No.	Size	EUR
38064.01	25 g	15,00
38064.02	100 g	27,00
38064.03	500 g	105,00

■ **Valinomycin** research grade

(cyclo(Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val))

$\text{C}_{54}\text{H}_{90}\text{N}_{10}\text{O}_{18}$ ♦ M_r 1111.3 ♦ CAS [2001-95-8]



DANGER

H300-H310-H330 ♦ GGVS/ADR 6.1 | UN2811 ♦ IATA 6.1 | UN2811

♦ EINECS 217-896-6 ♦ WGK 3L ♦ HS 29419000

Cyclopeptide-antibiotic. Affects potassium permeability of biomembranes.
 D-HIV = Hydroxy-isovaleric acid, Lac = lactic acid.

Assay (HPLC) 93.0 - 100.0 %

References:

- Höfer, M. & Pressman, B.C. (1966) Biochemistry **5**, 3919-25
- Davidson, G.A. & Berman, M.C. (1985) J. Biol. Chem. **260**, 7325
- Eytan, G.D. et al. (1990) J. Biol. Chem. **265**, 12949

Cat.No.	Size	EUR
38076.02	10 mg	32,00
38076.03	50 mg	98,00
38076.04	250 mg	340,00

■ **Vancomycin HCl**

$\text{C}_{66}\text{H}_{75}\text{Cl}_2\text{N}_9\text{O}_{24}\cdot\text{HCl}$ ♦ M_r 1485.7 ♦ CAS [1404-93-9]



WARNING

H317 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph.Eur. Mixture of glycopeptide antibiotics. Min. 1050 I.E./mg. Major component: Vancomycin B: min. 93 % (HPLC). Bactericidal against Gram-positive and some Gram-negative bacteria (Neisseria sp.). Inhibits formation of murein during cell wall synthesis. Suitable for cell culture.

References:

- McIntyre, J.J. et al. (1999) Biotechnol. Bioengineering **62**, 576-82
- Daniel, R.A. & Errington, J. (2003) Cell **113**, 767-76
- Severin, A. et al. (2004) J. Biol. Chem. **279**, 3398-407
- Muchova, K. et al. (2011) FEMS Microbiol. Lett. **325**, 92-8

Cat.No.	Size	EUR
38125.01	250 mg	32,00
38125.02	1 g	94,00
38125.03	5 g	360,00

■ Versene disodium

see 11280 Ethylenediamine tetraacetic acid- Na_2 -salt, page 43, 138, 147, 320, 366

■ VISKING Dialysis Membranes

see Chapter Dialysis, page 157

■ Vitamin A acetate research grade

(all-trans Retinyl acetate)

$\text{C}_{22}\text{H}_{32}\text{O}_2$ ♦ M_r 328.5 ♦ CAS [127-47-9]



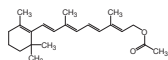
WARNING

H315-H361d ♦ EINECS 204-844-2 ♦ WGK 1 ♦
HS 29362100

Storage temperature +2 °C to +8 °C

Activity (UV) min. 1 350 000 U/g.

Protect from light and air. Store under argon.



Cat.No.	Size	EUR
38220.01	1 g	19,00

■ Vitamin B₁ hydrochloride

see 36020 Thiamine-HCl, page 112, 325

■ Vitamin B₁₂ cryst. pure

(Cyanocobalamin; Extrinsic Factor; Antianemic vitamin B)

$\text{C}_{63}\text{H}_{88}\text{N}_{14}\text{O}_{14}\text{PCo}$ ♦ M_r 1355.4 ♦ CAS [68-19-9]

EINECS 200-680-0 ♦ WGK 1L ♦ HS 29362600

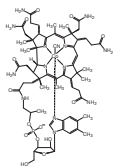
Storage temperature +2 °C to +8 °C

USP, Ph.Eur. Protect from light!

Assay (UV), dried

96.0 - 100.5 %

Non animal origin



Cat.No.	Size	EUR
38310.02	500 mg	31,00

■ Vitamin B₂

see 34350 Riboflavin, page 88, 324

■ Vitamin B₆

see 33990 Pyridoxine-HCl, page 87, 323

■ Vitamin C

see 14030 L-Ascorbic acid, page 15, 318

■ Vitamin H

see 15060 (+)-Biotin, page 18, 294, 314

■ Water demineralized, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size	EUR
39800.01	500 ml	36,00

■ Water DEPC (0.1 %) treated, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size	EUR
39798.03	500 ml	30,00

■ WST 1

(2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfophenyl)-2H-tetrazolium,Na-salt)

$\text{C}_{19}\text{H}_{11}\text{N}_5\text{O}_8\text{S}_2\text{Na}$ ♦ M_r 651.35 ♦ CAS [150849-52-8]



WARNING

H302-H312-H315-H319-H332-H335 ♦
HS 29339980

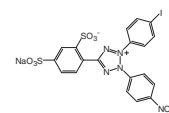
Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble (>0.1 M) formazan upon reduction. Suitable for cell proliferation and cytotoxicity assays.

Keep dry and dark.

References:

1. Ishiyama, M. et al. (1993) Chem. Pharm. Bull. **41**, 1118
2. Ishiyama, M. et al. (1995) In vitro Toxicol. **8**, 187
3. Ishiyama, M. et al. (1995) Analyst **120**, 113



Cat.No.	Size	EUR
38391.01	25 mg	77,00
38391.02	100 mg	240,00

■ X-Gal

see 15243 5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal), page 20, 294, 344

■ X-Gluc

see 15248 5-Bromo-4-chloro-3-indolyl-β-D-glucuronide-cyclohexylammonium salt, page 20, 344

■ X-phos disodium salt

see 15259 5-Bromo-4-chloro-3-indolyl-phosphate- Na_2 -salt, page 20, 343

■ Xanthine oxidase from buttermilk min. 0.9 U/mg protein suspension

(XOD; Xanthine:oxygen oxidoreductase)

EC 1.1.3.22 ♦ M_r ca. 283 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

For the determination of xanthine and hypoxanthine (1), adenosine, guanosine (2) and total purines (3). Chromatographically purified; ca. 10 mg/ml in 60 % saturated ammonium sulfate containing sodium salicylate and EDTA.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the oxidation of 1 μmole xanthine per minute at 25 °C, pH 7.5, measured by the increase in absorbance in 290 nm (4).

References:

1. Jensen, M.H. & Joergensen, S. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. vol. **7**, p. 125-33
2. Heinz, F. & Reckel, S. (1985) loc. cit. p. 92-100
3. Jensen, M.H. (1985) loc. cit. p. 101-10
4. Kalckar, H.M. (1947) J. Biol. Chem. **167**, 429-43

Cat.No.	Size	EUR
38418.01	5 mg	22,00
38418.02	25 mg	84,00

■ XOD

see 38418 Xanthine oxidase from buttermilk min. 0.9 U/mg protein, page 121, 341

Products for Isoelectric Focusing:
see special chapter at p. 190

■ XTT

(Sodium 3,3'-[[(Phenylamino)carbonyl]-3,4-Tetrazolium]-Bis(4-methoxy-6-nitro)benzenesulfonic acid hydrate)

$C_{22}H_{16}N_{10}O_{13}S_2Na$ ♦ M_r 674.53 ♦ CAS [111072-31-2]

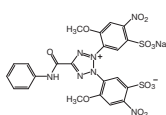
HS 29339980

Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble formazan upon reduction. Suitable for anti-HIV (1 - 3) and anti-tumor (4 - 6) drug testing as well as for cell proliferation assays (7 - 8).

References:

1. Weislov, O.S. et al. (1989) J. Natl. Cancer Inst. **81**, 577-86
2. Gulakowski, R.J. et al. (1991) J. Virol. Methods **33**, 87-100
3. Yu, K.L. et al. (1992) J. Med. Chem. **35**, 2958-69
4. Scudiero, D.A. et al. (1988) Cancer Res. **48**, 4827-33
5. Jost, L.M. et al. (1992) J. Immunol. Methods **147**, 153-65
6. Kondo, T. et al. (1994) Oncology **51**, 535-9
7. Roehm, N.W. et al. (1991) J. Immunol. Methods **142**, 257-65
8. Buttke, T.M. et al. (1993) J. Immunol. Methods **157**, 233-40



Cat.No.	Size	EUR
38450.01	50 mg	62,00
38450.02	250 mg	219,00

■ Xylan from beech wood pure

CAS [9014-63-5]

EINECS 232-760-6 ♦ WGK 1 ♦ HS 29400000

Cat.No.	Size	EUR
38500.02	25 g	59,00

■ Xylene cyanol FF

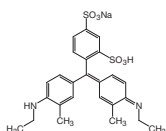
C.I.43535 ♦ $C_{25}H_{27}N_2O_5S_2Na$ ♦ M_r 554.6 ♦
CAS [4463-44-9]



WARNING

H319-H335 ♦ EINECS 224-728-5 ♦ WGK 1 ♦

HS 32049000



Cat.No.	Size	EUR
38505.01	25 g	110,00

■ D-Xylose research grade

$C_5H_{10}O_5$ ♦ M_r 150.13 ♦ CAS [58-86-6]

EINECS 200-400-7 ♦ WGK 1 ♦ HS 29400000

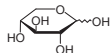
Assay min. 99.0 %

MP 145 - 153 °C

$[\alpha]_{20}^{20}$ °C/D

(c=10 in water, after 24 h) +19.0 ° to +21.0 °

Heavy metals (Pb) max. 5 ppm



Cat.No.	Size	EUR
38530.01	100 g	24,00
38530.02	500 g	95,00

■ Yeast extract SERVABACTER® powder

CAS [8013-01-2]

EINECS 232-387-9 ♦ HS 38210000

Water soluble fraction of yeast autolysate. A 2 % aqueous solution is clear and has a pH of ca. 6.5 - 7.5. Rich in B-vitamins and growth factors, convenient standard material for culture media. Tested for use in tissue culture.

Cat.No.	Size	EUR
24540.02	500 g	40,00
24540.03	5 kg	220,00

■ YPD Agar, Powder 65 g for 1 liter medium

HS 38210000

A nutritious general growth medium for the propagation of yeast

20 g/l Tryptone

10 g/l Yeast extract

20 g/l Dextrose

15 g/l Agar

For making 1 L agar medium, suspend 65 g in 1 L distilled water and sterilize by autoclaving. Cool to 45 °C prior dispensing into sterile petri dishes.

References:

1. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
48508.01	650 g	65,00

■ YPD Medium, Powder 50 g for 1 liter medium

HS 38210000

A nutritious general growth medium for the propagation of yeast.

20 g/l Tryptone

10 g/l Yeast extract

20 g/l Dextrose

For making 1 L liquid medium suspend 50 g in 1 L distilled water and sterilize by autoclaving.

References:

1. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
48507.01	500 g	48,00

■ 2xYT Agar, Powder 46 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and M13 bacteriophages in molecular biology.

16 g/l Tryptone

10 g/l Yeast extract

5 g/l NaCl

15 g Agar

For making 1 L 2x liquid medium suspend 46 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving. Cool to 45 °C prior to dispensing into sterile petri dishes.

References:

1. Sambrook, J., et al., Molecular Cloning : A Laboratory Manual, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48504.01	460 g	58,00

■ 2xYT Medium, Powder 31 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and M13 bacteriophages in molecular biology.

16 g/l Tryptone

10 g/l Yeast extract

5 g/l NaCl

For making 1 L 2x liquid medium suspend 31 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

References:

1. Sambrook, J., et al., Molecular Cloning : A Laboratory Manual, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48503.01	620 g	57,00

SERVAGel™ PRiME™
precast gels for SDS PAGE:

see special chapter at p. 203

Sample Preparation

Protein Purification Kits 124

Affinity Chromatography 129

His-Tag Purification 129

GST-Tag Purification 132

Protein Quantification 133

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VISKING 157

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Reliable, efficient and easy sample preparation is one of the most crucial steps for achieving optimal and reproducible results in all tasks of protein and nucleic acid analysis.

All SERVA reagents for sample preparation are of premium quality, subjected to stringent quality control (QC):

- Detergents
- Protease Inhibitors
- Phosphatase Inhibitors
- Enzymes
- Reagents
- Dialysis Tubings
- Reagents

Additionally, SERVA offers highly user-friendly kits, serving as tools for protein isolation, purification and quantification:

- SERVA *BluePrep* Kits
- IMAC and Glutathione agarose resins
- CentriPure and CentriSpin Gel Filtration Columns
- Kits for Protein Quantification

Protein Sample Preparation

With **SERVA *BluePrep* Kits**, based on an innovative technology, you are able to produce samples suitable for all common downstream applications in a fast and convenient way.

The **SERVA *BluePrep* 2in1, 3in1 and 4in1 Kits** do not only save time and precious sample material, but also allow for consistent work-up in gene expression analysis

– RNA, DNA and proteins are derived from the same sample.

In addition to the ***BluePrep* series**, SERVA offers a wide range of detergents for solubilization of membrane proteins and protease and phosphatase inhibitors for sample protection during purification, and high quality, application proved reagents for protein isolation, purification and concentration.

CentriPure and CentriSpin Gelfiltration Columns allow you rapid and efficient desalting, buffer exchange and removal of small molecular impurities, such as salts, ammonia, dyes, biotin, haptens etc. from antibodies, enzymes and other proteins.

Affinity chromatography is a technique that separates tagged proteins and other biomolecules using biological interactions. This technique is widely used to obtain high purity yield accompanied by good resolution and selectivity.

Immobilized Metal Affinity Chromatography (IMAC) is based on the interaction between certain superficial protein residues (histidines, cysteines and to a lesser extent tryptophans) with transition metal cations, forming chelated complexes.

SERVA offers **IMAC agarose resins** for working in different conditions (native and denaturing), different densities of groups (high and low activated beads), cations (Ni^{2+} , Co^{2+} , Zn^{2+} & Cu^{2+}) and formats (bulk resins, pre-packed columns).

Fusion proteins expressed from pGEX vectors contain a Glutathione S-Transferase (GST) moiety and can therefore be purified to near homogeneity by affinity chromatography of glutathione as a substrate to inactivate toxic small molecules via formation of mercapturic acid. SERVA's Glutathione Agarose Resin allows a rapid, mild and highly selective purification of GST fusion proteins in an one step procedure.

Whenever viscosity caused by nucleic acids is a problem, **Cyanase™ Nuclease** (cat. no. 18542) is ideal for sample preparation in electrophoresis or chromatography and for purification of proteins and other biologicals. For high salt samples we offer the unique nuclease **Salt Active Nuclease** (cat. no. 18541).

- SERVA *BluePrep* Kits
- IMAC and Glutathione agarose resins
- Enzymes and Inhibitors
- CentriPure and CentriSpin Gelfiltration Columns
- Detergents
- Reagents

Protein Purification Kits

■ SERVA *BluePrep* CBD Micro Kit 25 reactions

HS 38220000

The SERVA *BluePrep* CBD Micro Kit bases on spin-column chromatography and provides a fast and simple procedure for concentration, buffer exchange and desalting of protein samples. Process up to 10 samples in only 20 minutes.

The ion exchange resin has an inherent low affinity for salt but a high affinity for proteins, providing salt removal and buffer exchange simultaneously. Based on ion exchange mechanism, a broad size range of proteins and peptides to antibodies can be processed.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- Isoelectric focusing
- X-ray crystallography
- NMR spectroscopy

Kit specifications

- Maximum protein input/spin column: 50 µg
- Column reservoir capacity: 650 µl
- Maximum loading volume per spin column: 5 ml (multiple loads necessary)
- Protein recovery: up to 99 %*
- Minimum elution volume: 30 µl (for max. protein recovery 50 µl)
- % Salt removal: up to 99 %
- Volume concentration factor: up to 100x

*Recovery rate for BSA with the supplied elution buffer. Recovery will vary depending on the protein sample and the elution buffer used.

Cat.No.	Size	EUR
42070.01	25 reactions	275,00

■ SERVA *BluePrep* CBD Micro Kit 50 reactions

HS 38220000

Description: see cat. no. 42070 (above).

Cat.No.	Size	EUR
42071.01	50 reactions	370,00

■ SERVA BluePrep CBD Macro Kit 4 reactions

HS 38220000

The SERVA BluePrep CBD Macro Kit bases on spin-column chromatography and provides a fast and simple procedure for concentrating large volumes of dilute protein solutions for buffer exchange and desalting. Process up to 4 samples in only 20 minutes.

The ion exchange resin has an inherent low affinity for salt but a high affinity for proteins, providing salt removal and buffer exchange simultaneously. Based on ion exchange mechanism, a broad size range of proteins and peptides to antibodies can be processed.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- Isoelectric focusing
- X-ray crystallography
- NMR spectroscopy

Kit specifications

- Maximum protein input/spin column: 8 mg
- Minimum protein input/spin column: 0.25 mg
- Column reservoir capacity: 20 ml
- Maximum loading volume per spin column: 100 ml (multiple loads necessary)
- Protein recovery: up to 99 %*
- Min. elution volume: 30 µl (for max. protein recovery 50 µl)
- % Salt removal: up to 99 %
- Volume concentration factor: up to 25x

*Recovery rate for BSA with the supplied elution buffer. Recovery will vary depending on the protein sample and the elution buffer used.

Cat.No.	Size	EUR
42072.01	4 reactions	165,00

■ SERVA BluePrep Cell Lysis Reagent

HS 38220000

Cell lysis is accomplished through non-ionic detergent chemical disruption in conjunction with mechanical disruption. The use of a needle and syringe during the procedure helps to reduce viscosity and facilitates purification, producing proteins that are often greater than 95 % pure. This gentle lysis of bacteria is especially suitable for subsequent extraction of inclusion bodies. The extracted inclusion body aggregates can then be solubilized with SERVA BluePrep IB Solvent (cat. no. 42083) to release the recombinant proteins.

Cat.No.	Size	EUR
42084.01	100 ml	89,00
42084.02	500 ml	255,00

■ SERVA BluePrep Detergent-Free Protein Isolation Kit

HS 38220000

The SERVA BluePrep Detergent-Free Protein Isolation Kit provides a fast and simple procedure for the isolation of total proteins from tissue, bacteria, yeast or mammalian cells without the use of SDS, Triton® X-100 and other detergents. The kit bases on using a proprietary resin together with Lysis Solution, followed by protein filtration using filter columns. Process up to 12 samples in less than 10 minutes.

The purified proteins can be used in a number of downstream applications:

- Mass spectrometry
- SDS-PAGE
- Isoelectric focusing
- Proteolytic digestion
- X-Ray crystallography
- NMR spectroscopy

Kit specifications

Maximum amount of starting material:

Tissues	50 mg
Animal cells	1 x 10 ⁷ cells
Yeast	1 x 10 ⁹ cells
Bacteria	1 x 10 ¹⁰ cells

Cat.No.	Size	EUR
42090.01	25 reactions	250,00

■ SERVA BluePrep DetergentEx Micro Kit 25 reactions

HS 38220000

The SERVA BluePrep DetergentEx Micro Kit bases on spin-column chromatography and provides a fast and simple procedure for the effective removal of SDS, Triton X®-100 and other detergents from small samples of protein. Process up to 12 samples in only 20 minutes compared to dialysis over several hours. Moreover detergent removal and concentration can be done simultaneously.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- Isoelectric focusing
- Proteolytic digestion
- X-ray crystallography
- NMR spectroscopy

Kit specifications

Max. protein input/spin column	50 µg
Column reservoir capacity	650 µl
Max. loading volume/spin column (multiple loads necessary)	5 ml
Protein recovery	80 - 95 %
Min. elution volume	30 µl (for max. protein recovery 50 µl)
% Detergent removal	> 95 %

Cat.No.	Size	EUR
42073.01	25 reactions	275,00

■ SERVA BluePrep DetergentEx Micro Kit 50 reactions

HS 38220000

Description: see cat. no. 42073 (above).

Cat.No.	Size	EUR
42074.01	50 reactions	370,00

■ SERVA BluePrep DetergentEx Macro Kit 4 reactions

HS 38220000

The SERVA BluePrep DetergentEx Macro Kit bases on spin-column chromatography and provides a fast and simple procedure for the effective removal of SDS, Triton X®-100 and other detergents from large samples of protein. Process up to 4 samples in only 40 minutes compared to dialysis over several hours. Moreover detergent removal and concentration can be done simultaneously.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- Isoelectric focusing
- Proteolytic digestion
- X-ray crystallography
- NMR spectroscopy

Kit specifications

Max. protein input/spin column	8 mg
Min. protein input/spin column	0.25 mg
Column reservoir capacity	20 ml
Max. loading volume/spin column (multiple loads necessary)	100 ml
Protein recovery	up to 100 %
Min. Elution volume	4 ml
% Detergent removal	> 95 %

Cat.No.	Size	EUR
42075.01	4 reactions	165,00

■ SERVA BluePrep IB Isolation Micro Kit 20 reactions

HS 38220000

The SERVA BluePrep IB Isolation Micro Kit facilitates the preparation of recombinant proteins from *E. coli* inclusion bodies. The kit provides reagents for fast and high-quality purification of inclusion bodies using three steps:

1. Lysis of bacterial cells to release inclusion bodies
2. Solubilization of purified inclusion bodies
3. Purification of the recombinant protein using spin column chromatography based on ion exchange.

The gentle cell disruption procedure provides a highly pure final product (often > 95 %). Process up to 12 samples in only 60 minutes.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- 2 D-PAGE
- Refolding experiments

Kit specifications

Maximum culture volume	1.5 ml
Yield from 1.5 ml	up to 50 µg
Minimum elution volume	30 µl

Cat.No.	Size	EUR
42076.01	20 reactions	285,00

■ SERVA BluePrep IB Isolation Micro Kit 50 reactions

HS 38220000

Description: see cat. no. 42076 (above).

Cat.No.	Size	EUR
42077.01	50 reactions	410,00

■ SERVA BluePrep IB Isolation Macro Kit 4 reactions

HS 38220000

The SERVA BluePrep IB Isolation Macro Kit facilitates the preparation of recombinant proteins from *E. coli* inclusion bodies from large culture volume. The kit provides reagents for fast and high-quality purification of inclusion bodies using three steps:

1. Lysis of bacterial cells to release inclusion bodies
2. Solubilization of purified inclusion bodies
3. Purification of the recombinant protein using spin column chromatography based on ion exchange.

The gentle cell disruption procedure provides a highly pure final product (often > 95 %). Process 1 sample in only 60 minutes.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- 2 D-PAGE
- Refolding experiments

Kit specifications:

Maximum culture volume	100 ml
Yield from 100 ml	up to 12 mg
Minimum elution volume	4 ml

Cat.No.	Size	EUR
42078.01	4 reactions	180,00

■ SERVA BluePrep IB Solvent

HS 38220000

SERVA BluePrep IB Solvent effectively dissolves inclusion body aggregates which are frequently formed when recombinant proteins are overexpressed in bacteria. The released recombinant proteins can then be analyzed by SDS-PAGE, quantified or further purified for refolding.

Cat.No.	Size	EUR
42083.01	25 ml	70,00
42083.02	100 ml	180,00

■ SERVA BluePrep Major Serum Protein Removal Kit

25 reactions

HS 38220000

The SERVA BluePrep Major Serum Protein Removal Kit bases on spin-column chromatography and provides a fast and simple procedure for the effective depletion of major serum proteins including albumin, alpha-antitrypsin, transferrin and haptoglobin from serum and plasma samples. Process up to 10 samples in only 30 minutes.

Based on ion exchange mechanism and not using specific antibodies, the kit can be used with serum samples from humans and various animals. The kit depletes 70 % of albumin, 90 % of alpha-antitrypsin, and 50 % of transferrin and haptoglobin, enabling the visualization of low abundance proteins.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- 2 D-PAGE
- Microarrays

Kit specifications:

Max. protein input/spin column	500 µg
Min. protein input/spin column	200 µg
Min. elution volume	100 µl (for max. protein recovery 200 µl)

Cat.No.	Size	EUR
42079.01	25 reactions	250,00

■ SERVA BluePrep ON-Column Digest Kit 25 reactions

HS 38220000

The SERVA BluePrep ON-Column Digest Kit provides a fast, easy and efficient procedure for generating purified peptides by tryptic digestion from simple and complex protein samples. Both the proteins and the non-active trypsin (e.g. cat. no. 37284) are bound to the spin column, while salts and other non-specifically bound materials are washed away. The peptide digest is complete, with no additional artifacts being detected in mass spectrometry. Process up to 10 samples in only 20 minutes (plus 1 h incubation time).

The final elution is suitable for:

- Mass spectrometry (LC/MS and LC/MS/MS)
- SDS-PAGE
- MALDI-TOF

Kit specifications:

Max. protein input/spin column	15 µg
Min. protein input/spin column	2 µg
Min. elution volume	30 µl
Column reservoir capacity	650 µl

Cat.No.	Size	EUR
42082.01	25 reactions	250,00

■ SERVA BluePrep Protein EndotoxinEx Micro Kit

20 reactions

HS 38220000

The SERVA BluePrep Protein EndotoxinEx Micro Kit bases on spin-column chromatography and provides a fast and simple procedure for the removal of endotoxins from up to 150 µg of previously purified proteins and peptides. Process up to 10 samples in only 20 minutes.

Endotoxins are frequent contaminants of protein preparations derived from bioprocesses. They are highly toxic and must therefore often be removed prior to the use of the protein in downstream applications.

The eluted proteins are suitable for:

- *In vivo* and *in vitro* introduction into cells and organisms
- Monoconal and polyclonal antibody generation

Kit specifications:

Max. protein input/spin column	150 µg
Max. initial protein volume input	450 µl
Average recovery	> 95 %
Final endotoxin level	≤ 0.01 EU/µg protein
Min. elution volume	50 µl

Cat.No.	Size	EUR
42085.01	20 reactions	250,00

■ SERVA BluePrep Protein EndotoxinEx Macro Kit

HS 38220000

The SERVA BluePrep Protein EndotoxinEx Macro Kit bases on spin-column chromatography and provides a fast and simple procedure for the removal of endotoxins from up to 4 mg of previously purified proteins and peptides. Process up to 10 samples in only 30 minutes.

Endotoxins are frequent contaminants of protein preparations derived from bioprocesses. They are highly toxic and must therefore often be removed prior to the use of the protein in downstream applications.

The eluted proteins are suitable for:

- *In vivo* and *in vitro* introduction into cells and organisms
- Monoconal and polyclonal antibody generation

Kit specifications:

Max. protein input/spin column	4 mg
Max. initial protein volume input	18 ml
Average recovery	> 95 %
Final endotoxin level	≤ 0.1 EU/μg protein
Min. elution volume	1 ml

Cat.No.	Size	EUR
42086.01	4 reactions	175,00

■ SERVA BluePrep Urine Concentration Micro Kit

25 reactions

HS 38220000

The SERVA BluePrep Urine Concentration Micro Kit provides a fast and simple procedure for the concentration of dilute solutions of urine proteins from small urine volumes. The kit is available in micro spin column and 96-well plate format. Process up to 12 samples in only 20 minutes or one 96-well plate in 60 minutes.

Because urine is more readily and conveniently acquired than blood, urine protein analysis is an attractive alternative to blood plasma as a potential source of disease biomarkers.

The ion exchange resin has an inherent low affinity for salt but a high affinity for proteins, providing salt removal and buffer exchange simultaneously. Based on ion exchange mechanism, a broad size range of proteins can be processed.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- 2 D-PAGE
- Microarrays

Kit specifications for micro spin columns:

Max. urine volume input	1 ml
Max. recovered protein	200 μg
Min. elution volume	30 μl

Kit specifications for 96-well plates:

Max. urine volume input	600 μl
Max. recovered protein	120 μg
Min. elution volume	50 μl

Cat.No.	Size	EUR
42080.01	25 reactions	250,00

■ SERVA BluePrep Urine Concentration Macro Kit

4 reactions

HS 38220000

The SERVA BluePrep Urine Concentration Macro Kit provides a fast and simple procedure for the concentration of dilute solutions of urine proteins from large urine volumes. Process up to 4 samples in only 45 minutes.

Because urine is more readily and conveniently acquired than blood, urine protein analysis is an attractive alternative to blood plasma as a potential source of disease biomarkers.

The ion exchange resin has an inherent low affinity for salt but a high affinity for proteins, providing salt removal and buffer exchange simultaneously. Based on ion exchange mechanism, a broad size range of proteins can be processed.

The final elution is performed with choices of several different buffers suitable for:

- Mass spectrometry
- SDS-PAGE
- 2 D-PAGE
- Microarrays

Kit specifications for micro spin columns:

Max. urine volume input	20 ml
Max. recovered protein	4 mg
Min. elution volume	2 ml

Cat.No.	Size	EUR
42081.01	4 reactions	159,00

■ SERVA BluePrep 2in1 Purification Kit 20 reactions



WARNING

H302-H312-H332 ♦ HS 38220000

The SERVA BluePrep 2in1 Purification Kit provides a fast and efficient procedure for isolation and purification of total RNA and proteins sequentially from a single sample. Samples from a broad range of sources like animal cells, tissues (plant, animal and human), blood, bacteria, yeast and fungi can be processed. Because the method bases on spin column chromatography, no phenol/chloroform extraction and acetone precipitation of proteins are necessary. It is the ideal kit for researchers interested in analysis of the proteome and transcriptome of a single sample for studies of gene expression (e.g. gene silencing, mRNA knockdowns), biomarker discoveries, studies in epigenetics and for characterization of cell lines. No need for fractionation of the sample, which reduces variability and inconsistent results and saves material from difficult to obtain or small samples. Process up to 10 samples in only 25 minutes.

The purified RNA is highly integer and suitable for a number of downstream applications like real time PCR, RT-PCR, Northern Blotting, RNase protection assays, primer extension and expression arrays.

The purified proteins can be used in all common applications such as Western Blotting, SDS-PAGE, and IEF etc.

Kit specifications:

- Column binding capacity: RNA 50 μg, protein 200 μg
- Column reservoir capacity: 600 μl
- Size of RNA purified: all sizes (incl. miRNA, siRNA, <200 nt)
- Average yield (HeLa Cells, 1 x 10⁶ cells): 15 μg RNA, 150 μg protein

Maximum amount of starting material:

Animal cells	3 x 10 ⁶ cells
Animal tissues	10 – 20 mg
Blood	100 μl
Bacteria	1 x 10 ⁹ cells
Yeast	1 x 10 ⁸ cells
Fungi	50 mg
Plant tissues	50 mg

Cat.No.	Size	EUR
42088.01	20 reactions	220,00

Products for Electrophoresis:
see special chapter at p. 189

■ **SERVA BluePrep 3in1 Purification Kit** 20 reactions

WARNING
H302-H312-H332 ♦ HS 38220000

The SERVA *BluePrep* 3in1 Purification Kit provides a fast and efficient procedure for isolation and purification of total RNA, genomic DNA and proteins sequentially from a single sample. Samples from a broad range of sources like animal cells, tissues (plant, animal and human), blood, bacteria, yeast and fungi can be processed. Because the method bases on spin column chromatography, no phenol/chloroform extraction and acetone precipitation of proteins are necessary. It is the ideal kit for researchers interested in analysis of the genome, proteome and transcriptome of a single sample for studies of gene expression (e.g. gene silencing, mRNA knockdowns), biomarker discoveries, studies in epigenetics and for characterization of cell lines. No need for fractionation of the sample, which reduces variability and inconsistent results and saves material from difficult to obtain or small samples. Process up to 10 samples in only 30 minutes. The purified RNA is highly integer and suitable for a number of downstream applications like real time PCR, RT-PCR, Northern Blotting, RNase protection assays, primer extension and expression arrays.

The genomic DNA is of highest quality and is suitable for a broad range of applications like PCR, sequencing, Southern Blotting and SNP analysis. The purified proteins can be used in all common applications such as Western Blotting, SDS-PAGE, and IEF etc.

Kit specifications

- Column binding capacity: RNA 50 µg, DNA 200 µg, protein 200 µg
- Column reservoir capacity: 600 µl
- Size of RNA purified: all sizes (incl. miRNA, siRNA, <200 nt)
- Size of DNA purified: >30 kb
- Average yield (HeLa Cells, 1 x 10⁶ cells): 15 µg RNA, 8 µg DNA, 150 µg protein

Maximum amount of starting material:

Animal cells	3 x 10 ⁶ cells
Animal tissues	10 – 20 mg
Blood	100 µl
Bacteria	1 x 10 ⁹ cells
Yeast	1 x 10 ⁸ cells
Fungi	50 mg
Plant tissues	50 mg

Cat.No.	Size	EUR
42087.01	20 reactions	250,00

■ **SERVA BluePrep 4in1 Purification Kit** 20 reactions

HS 38220000

The SERVA *BluePrep* 4in1 Purification Kit provides a fast and efficient procedure for isolation and purification of total RNA, including microRNA, genomic DNA and proteins sequentially from a single sample. By using the provided microRNA enrichment column the separate purification of small RNA (<200nt) is possible, allowing for the purification of large RNA, microRNA, genomic DNA and proteins from one single sample. Samples from a broad range of sources like animal cells, tissues (plant, animal and human), blood, bacteria, yeast and fungi can be processed. Because the method bases on spin column chromatography, no phenol/chloroform extraction and acetone precipitation of proteins are necessary. It is the ideal kit for researchers interested in analysis of the proteome and transcriptome of a single sample for studies of gene expression (e.g. gene silencing, mRNA knockdowns), biomarker discoveries, studies in epigenetics and for characterization of cell lines. No need for fractionation of the sample, which reduces variability and inconsistent results and saves material from difficult to obtain or small samples. Process up to 10 samples in only 40 minutes (separation of microRNA included).

The purified RNA is highly integer and suitable for a number of downstream applications like real time PCR, RT-PCR, Northern Blotting, RNase protection assays, primer extension and expression arrays.

The purified proteins can be used in all common applications such as Western Blotting, SDS-PAGE, and IEF etc.

Kit specifications:

- Column binding capacity: RNA 50 µg, DNA 200 µg, protein 200 µg
- Column reservoir capacity: 600 µl
- Size of RNA purified: all sizes (separate purification of miRNA, siRNA optional)
- Size of DNA purified: > 30 kb
- Average yield (HeLa Cells, 1 x 10⁶ cells): 15 µg RNA, 8 µg DNA, 150 µg protein

Maximum amount of starting material:

Animal cells	3 x 10 ⁶ cells
Animal tissues	10 – 20 mg
Blood	100 µl
Bacteria	1 x 10 ⁹ cells
Yeast	1 x 10 ⁸ cells
Fungi	50 mg
Plant tissues	50 mg

Cat.No.	Size	EUR
42089.01	20 reactions	305,00

Affinity Chromatography

Purification of proteins is a vital part of modern research. Impure extracts generally contain a wide range of proteins with diverse biological functions and different chemistry which need to be separated.

Affinity chromatography is a technique that separates tagged proteins and other biomolecules using biological interactions. This technique is widely used to obtain high purity and yield accompanied by good resolution and selectivity.

His-Tag Purification

Immobilized Metal Affinity Chromatography (IMAC) is based on the interaction between certain superficial protein residues (histidines, cysteines and to a lesser extent tryptophans) with transition metal cations, forming chelated complexes.

These transition metals are bound through a chemical reaction to the agarose beads, giving the agarose an activation degree.

Iminodiacetic acid (IDA) groups are covalently coupled to crosslinked agarose beads. This resin is loaded with a divalent metal (Ni^{2+} , Co^{2+} , Zn^{2+} or Cu^{2+}). In comparison with other chelating resins such as NTA-agarose, IDA has three sites available for interaction with metal ions, instead of four with NTA. Therefore IDA resins are usually more easily regenerated allowing an easier elution of bound proteins with lower concentrations of imidazole.

The choice of resin depends on whether binding capacity or selectivity is more important for purification and whether the protein is easy or difficult to separate.

Choose between four different types of metal and two different densities of groups on the beads. With our test kits you can easily find the best purification solution for your application. Once you have chosen the best option, you can use our bulk resins or ready-to-use pre-packed columns for fast and effective purification of your protein. For easy column purifications with our bulk resins we offer empty columns for small volumes of 50 – 100 μl and 200 – 250 μl or larger volumes of 0.5 – 2 ml and 2 – 6 ml.

- **SERVA IMAC Test Kits** - contain 2 ml each of several resins for screening for the best option in regard to binding capacity/selectivity and protein type

- **Bulk Resins** – available as High Density (high binding capacity) and Low Density (high selectivity/specificity) types, metal-free or as Ni^{2+} -, Co^{2+} -, Zn^{2+} - or Cu^{2+} -chelating resins. Suitable for batch or column purifications.

- **Pre-Packed columns** – ready-to-use columns for gravity flow purifications, available as High Density or Low Density Ni^{2+} -, Zn^{2+} - or Cu^{2+} -chelating resins and as Low density Co^{2+} - chelating resin. Suitable for native and denaturing conditions, cross-contamination-free.

SERVA IMAC HD Test Kit

(HS 38220000)

The choice, which metal chelate resin is the most suitable, depends on whether binding capacity or selectivity is more important and whether the protein is easy or difficult to separate. The kit contains four different high density chelate resins for finding the best option for high binding capacity.

Contains:

2 ml SERVA IDA Metal-Free HD Agarose Resin, 2 ml SERVA Ni-IDA HD Agarose Resin, 2 ml SERVA Zn-IDA HD Agarose Resin, 2 ml SERVA Co-IDA HD Agarose Resin

Cat.No.	Size	EUR
42160.01	1 kit	70,00

SERVA IMAC HD Test Kit plus columns

HS 38220000

The choice, which metal chelate resin is the most suitable, depends on whether binding capacity or selectivity is more important and whether the protein is easy or difficult to separate. The kit contains four different high density chelate resins for finding the best option for high binding capacity. For easy purification by centrifugation the kit contains 40 empty mini columns.

Contains:

2 ml SERVA IDA Metal-Free HD Agarose Resin, 2 ml SERVA Ni-IDA HD Agarose Resin, 2 ml SERVA Zn-IDA HD Agarose Resin, 2 ml SERVA Co-IDA HD Agarose Resin, 40 mini columns

Cat.No.	Size	EUR
42161.01	1 kit	114,00

SERVA IMAC LD Test Kit

HS 38220000

The choice, which metal chelate resin is the most suitable, depends on whether binding capacity or selectivity is more important and whether the protein is easy or difficult to separate. The kit contains four different low density chelate resins for finding the best option for high selectivity.

Contains:

2 ml SERVA IDA Metal-Free LD Agarose Resin, 2 ml SERVA Ni-IDA LD Agarose Resin, 2 ml SERVA Zn-IDA LD Agarose Resin, 2 ml SERVA Cu-IDA LD Agarose Resin

Cat.No.	Size	EUR
42162.01	1 kit	70,00

SERVA IMAC LD Test Kit plus columns

HS 38220000

The choice, which metal chelate resin is the most suitable, depends on whether binding capacity or selectivity is more important and whether the protein is easy or difficult to separate. The kit contains four different low density chelate resins for finding the best option for high selectivity. For easy purification by centrifugation the kit contains 40 empty mini spin columns.

Contains:

2 ml SERVA IDA Metal-Free LD Agarose Resin, 2 ml SERVA Ni-IDA LD Agarose Resin, 2 ml SERVA Zn-IDA LD Agarose Resin, 2 ml SERVA Cu-IDA LD Agarose Resin, 40 mini spin columns

Cat.No.	Size	EUR
42163.01	1 kit	114,00

SERVA IMAC Ni-IDA Test Kit

HS 38220000

Nickel chelate resins recognize two exposed histidine tags. The resin works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications.

The kit contains 2 ml each of high density and low density Ni-IDA agarose resin.

SERVA Ni-IDA HD Agarose Resin provides a higher amount of available groups and allows for higher binding capacity.

SERVA Ni-IDA LD Agarose Resin has a lower amount of available groups and allows for higher selectivity/specificity in the binding of the tagged-protein.

Cat.No.	Size	EUR
42164.01	1 kit	51,00

■ SERVA IMAC Ni-IDA Test Kit plus columns

HS 38220000

Nickel chelate resins recognize two exposed histidine tags. The resin works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications.

The kit contains 2 ml each of high density and low density Ni-IDA agarose resin.

SERVA Ni-IDA HD Agarose Resin provides a higher amount of available groups and allows for higher binding capacity.

SERVA Ni-IDA LD Agarose Resin has a lower amount of available groups and allows for higher selectivity/specificity in the binding of the tagged-protein.

For easy purification by centrifugation the kit contains 20 empty mini columns.

Cat.No.	Size	EUR
42165.01	1 kit	70,00

■ SERVA IMAC Ni- and Co-IDA Test Kit

HS 38220000

With Nickel and Cobalt chelate resins the majority of easy to separate histidine-tagged proteins can be purified. Ni-IDA resins recognize two exposed histidine tags. Co-IDA resins recognize histidine tags in vicinal (neighboring) positions.

The kit contains 2 ml each of SERVA Ni-IDA HD Agarose Resin, SERVA Ni-IDA LD Agarose Resin and SERVA Co-IDA HD Agarose Resin.

High density Ni-IDA provides a higher amount of available groups and allows for higher binding capacity. Low density Ni-IDA and high density Co-IDA usually improve the selectivity.

Cat.No.	Size	EUR
42166.01	1 kit	67,00

■ SERVA IMAC Ni- and Co-IDA Test Kit plus columns

HS 38220000

With Nickel and Cobalt chelate resins the majority of easy to separate histidine-tagged proteins can be purified. Ni-IDA resins recognize two exposed histidine tags. Co-IDA resins recognize histidine tags in vicinal (neighboring) positions.

The kit contains 2 ml each of SERVA Ni-IDA HD Agarose Resin, SERVA Ni-IDA LD Agarose Resin and SERVA Co-IDA HD Agarose Resin.

High density Ni-IDA provides a higher amount of available groups and allows for higher binding capacity. Low density Ni-IDA and high density Co-IDA usually improve the selectivity.

For easy purification by centrifugation the kit contains 30 empty mini columns.

Cat.No.	Size	EUR
42167.01	1 kit	97,00

■ SERVA IMAC Zn-IDA Test Kit

HS 38220000

Zinc chelate resins seem to recognize well two exposed histidine tags in vicinal (neighboring) positions. The resin is recommended for proteins that are difficult to separate.

The kit contains 2 ml each of high density and low density Zn-IDA agarose resin.

SERVA Zn-IDA HD Agarose Resin provides a higher amount of available groups and allows for higher binding capacity.

SERVA Zn-IDA LD Agarose Resin has a lower amount of available groups and allows for higher selectivity/specificity in the binding of the tagged-protein.

Cat.No.	Size	EUR
42168.01	1 kit	51,00

■ SERVA IMAC Zn-IDA Test Kit plus columns

HS 38220000

Zinc chelate resins seem to recognize well two exposed histidine tags in vicinal (neighboring) positions. The resin is recommended for proteins that are difficult to separate.

The kit contains 2 ml each of high density and low density Zn-IDA agarose resin.

SERVA Zn-IDA HD Agarose Resin provides a higher amount of available groups and allows for higher binding capacity.

SERVA Zn-IDA LD Agarose Resin has a lower amount of available groups and allows for higher selectivity/specificity in the binding of the tagged-protein.

For easy purification by centrifugation the kit contains 20 empty mini columns.

Cat.No.	Size	EUR
42169.01	1 kit	70,00

■ SERVA IMAC Zn - and Cu-IDA Test Kit

HS 38220000

This kit is recommended for proteins that are difficult to separate. Zinc chelate resins seem to recognize two exposed histidine tags in vicinal position and Copper chelate resins will recognize one single exposed histidine tag.

The kit contains 2 ml each of SERVA Zn-IDA HD Agarose Resin, SERVA Zn-IDA LD Agarose Resin and SERVA Cu-IDA LD Agarose Resin.

High density Zn-IDA provides a higher amount of available groups and allows for higher binding capacity. Low density Zn-IDA and low density Cu-IDA usually improve the selectivity.

Cat.No.	Size	EUR
42170.01	1 kit	67,00

■ SERVA IMAC Zn- and Cu-IDA Test Kit plus columns

HS 38220000

This kit is recommended for proteins that are difficult to separate. Zinc chelate resins seem to recognize two exposed histidine tags in vicinal position and Copper chelate resins will recognize one single exposed histidine tag.

The kit contains 2 ml each of SERVA Zn-IDA HD Agarose Resin, SERVA Zn-IDA LD Agarose Resin and SERVA Cu-IDA LD Agarose Resin.

High density Zn-IDA provides a higher amount of available groups and allows for higher binding capacity. Low density Zn-IDA and low density Cu-IDA usually improve the selectivity. For easy purification by centrifugation the kit contains 30 empty mini columns.

Cat.No.	Size	EUR
42171.01	1 kit	97,00

■ SERVA IDA Metal-Free HD Agarose Resin

HS 38220000

High density Iminodiacetic acid (IDA) crosslinked agarose resin. The high amount of activation for metal attachment allows for higher binding capacity. It is supplied without any metal and can be charged with the selected divalent cation.

Suitable for batch or column purifications.

Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42140.01	25 ml	242,00
42140.02	100 ml	541,00

■ SERVA Ni-IDA HD Agarose Resin

HS 38220000

High density Nickel-Iminodiacetic acid (IDA) crosslinked agarose resin. The higher amount of available groups allows for higher binding capacity. It recognizes two exposed histidine tags. The resin works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications.

Suitable for batch or column purifications.

Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42141.01	25 ml	242,00
42141.02	100 ml	541,00

SERVA Zn-IDA HD Agarose Resin

HS 38220000

High density Zinc-Iminodiacetic acid (IDA) crosslinked agarose resin. The higher amount of available groups allows for higher binding capacity. It recognizes two exposed histidine tags in vicinal position and is recommended for purification of proteins difficult to separate. Suitable for batch or column purifications. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42142.01	25 ml	242,00
42142.02	100 ml	541,00

SERVA Co-IDA HD Agarose Resin

HS 38220000

High density Cobalt-Iminodiacetic acid (IDA) crosslinked agarose resin. The higher amount of available groups allows for higher binding capacity. It recognizes two exposed vicinal histidine tags. The very good selectivity of Cobalt makes this resin the ideal choice for many purifications. Suitable for batch or column purifications. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42143.01	25 ml	242,00
42143.02	100 ml	541,00

SERVA IDA Metal-Free LD Agarose Resin

HS 38220000

Low density Iminodiacetic acid (IDA) crosslinked agarose resin. The low amount of activation for metal attachment allows for higher selectivity/specificity in the binding of the tagged-protein. It is supplied without any metal and can be charged with the selected divalent cation. Suitable for batch or column purifications. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42144.01	25 ml	242,00
42144.02	100 ml	541,00

SERVA Ni-IDA LD Agarose Resin

HS 38220000

Low density Nickel-Iminodiacetic acid (IDA) crosslinked agarose resin. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. It recognizes two exposed histidine tags. The resin works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications. Suitable for batch or column purifications. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42145.01	25 ml	242,00
42145.02	100 ml	541,00

SERVA Zn-IDA LD Agarose Resin

HS 38220000

Low density Zinc-Iminodiacetic acid (IDA) crosslinked agarose resin. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. It recognizes two exposed histidine tags in vicinal position and is recommended for purification of proteins difficult to separate. Suitable for batch or column purifications. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42146.01	25 ml	242,00
42146.02	100 ml	541,00

SERVA Cu-IDA LD Agarose Resin

HS 38220000

Low density Copper-Iminodiacetic acid (IDA) crosslinked agarose resin. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. It recognizes one single exposed histidine tag and is recommended for purification of proteins difficult to separate. Suitable for batch or column purifications. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42147.01	25 ml	242,00
42147.02	100 ml	541,00

SERVA Ni-IDA HD Mini Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 1ml Ni-IDA HD agarose resin. The resin recognizes two exposed histidine tags. It works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42148.01	8x1 ml	146,00

SERVA Ni-IDA HD Midi Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 5 ml Ni-IDA HD agarose resin. The resin recognizes two exposed histidine tags. It works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42149.01	5x5 ml	357,00

SERVA Zn-IDA HD Mini Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 1ml Zn-IDA HD agarose resin. The resin recognizes two exposed histidine tags in vicinal position and is recommended for purification of proteins difficult to separate. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42150.01	8x1 ml	146,00

SERVA Zn-IDA HD Midi Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 5 ml Zn-IDA HD agarose resin. The resin recognizes two exposed histidine tags in vicinal position and is recommended for purification of proteins difficult to separate. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42151.01	5x5 ml	357,00

SERVA Co-IDA HD Mini Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 1ml Co-IDA HD agarose resin. The resin recognizes two exposed vicinal histidine tags. The very good selectivity of Cobalt makes this resin the ideal choice for many purifications. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42152.01	8x1 ml	146,00

SERVA Co-IDA HD Midi Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 5 ml Co-IDA HD agarose resin. The resin recognizes two exposed vicinal histidine tags. The very good selectivity of Cobalt makes this resin the ideal choice for many purifications. The higher amount of available groups allows for higher binding capacity. Binding/loading capacity: 20 - 40 $\mu\text{mol Me}^{2+}/\text{ml gel}$.

Cat.No.	Size	EUR
42153.01	5x5 ml	357,00

■ SERVA Ni-IDA LD Mini Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 1 ml Ni-IDA LD agarose resin. The resin recognizes two exposed histidine tags. It works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}$ /ml gel

Cat.No.	Size	EUR
42154.01	8x1 ml	146,00

■ SERVA Ni-IDA LD Midi Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 5 ml Ni-IDA LD agarose resin. The resin recognizes two exposed histidine tags. It works well with relatively easy to separate His-tagged proteins and is recommended for most standard purifications. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}$ /ml gel

Cat.No.	Size	EUR
42155.01	5x5 ml	357,00

■ SERVA Cu-IDA LD Mini Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 1ml Cu-IDA LD agarose resin. The resin recognizes one single exposed histidine tag and is recommended for purification of proteins difficult to separate. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}$ /ml gel

Cat.No.	Size	EUR
42158.01	8x1 ml	146,00

■ SERVA Cu-IDA LD Midi Column

HS 38220000

Pre-packed, ready-to-use gravity flow columns filled with 5 ml Cu-IDA LD agarose resin. The resin recognizes one single exposed histidine tag and is recommended for purification of proteins difficult to separate. The lower amount of available groups allows for higher selectivity/specificity in the binding of the tagged-protein. Binding/loading capacity: 5 - 20 $\mu\text{mol Me}^{2+}$ /ml gel

Cat.No.	Size	EUR
42159.01	5x5 ml	357,00

■ Mini Columns

HS 39233010

For purification by centrifugation using 100 - 250 μl resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 1.5 ml

Cat.No.	Size	EUR
42173.01	25 columns	63,00
42173.02	100 columns	179,00

■ Midi Columns

HS 39233010

For purification by gravity flow using 0.5 - 2 ml resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 12 ml

Cat.No.	Size	EUR
42174.01	50 columns	157,50

■ Maxi Columns

HS 39233010

For purification by gravity flow using 2 - 6 ml resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 35 ml

Cat.No.	Size	EUR
42175.01	50 columns	190,00

■ Mini Spin Columns

HS 39233010

For purification with syringe (luer lock system) or by centrifugation using 50 - 100 μl resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 35 μm . Capacity: 0.8 ml

Cat.No.	Size	EUR
42176.01	25 columns	75,00

GST-TAG Purification

GST-Tag Purification

Fusion proteins expressed from pGEX vectors contain a Glutathione S-Transferase (GST) moiety and can therefore be purified to near homogeneity by affinity chromatography of glutathione as a substrate to inactivate toxic small molecules via formation of mercapturic acid. Because the affinity of GST for its substrate is in the submillimolar range, immobilization of glutathione on an agarose matrix makes a highly efficient affinity chromatography resin.

SERVA's Glutathione Agarose Resin allows a rapid, mild and highly selective purification of GST fusion proteins in an one step procedure. It can be used in batch or column purifications. For column purification we offer empty columns for small volumes of 50 - 100 μl and 200 - 250 μl or larger volumes of 0.5 - 2 ml and 2 - 6 ml.

■ Glutathione Agarose Resin

(HS 38220000)

The resin permits rapid, mild and highly selective purification of GST fusion proteins with an one step procedure. It works well with small and large proteins tagged with GST in batch or column purifications. Binding capacity: > 8 mg recombinant GST/ml gel

Cat.No.	Size	EUR
42172.01	10 ml	148,00
42172.02	100 ml	1.115,00

■ Mini Columns

HS 39233010

For purification by centrifugation using 100 - 250 μl resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 1.5 ml

Cat.No.	Size	EUR
42173.01	25 columns	63,00
42173.02	100 columns	179,00

■ Midi Columns

HS 39233010

For purification by gravity flow using 0.5 - 2 ml resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 12 ml

Cat.No.	Size	EUR
42174.01	50 columns	157,50

■ Maxi Columns

HS 39233010

For purification by gravity flow using 2 - 6 ml resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 20 μm . Capacity: 35 ml

Cat.No.	Size	EUR
42175.01	50 columns	190,00

■ Mini Spin Columns

HS 39233010

For purification with syringe (luer lock system) or by centrifugation using 50 - 100 µl resin. Polypropylene columns containing a polyethylene frit with a nominal pore size of 35 µm.
Capacity: 0.8 ml

Cat.No.	Size	EUR
42176.01	25 columns	75,00

Protein Quantification

Accurate determination of protein concentration is essential in the protein analysis workflow. Although there are a wide variety of protein assays available, none of the assays can be used without first considering their suitability for the application. Each assay has its own advantages and limitations and often it is necessary to obtain more than one type of protein assay for research applications.

■ BCA Protein Assay Macro Kit



DANGER

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.

- Fast and sensitive assay: linear detection range from 25 - 1000 µg protein/ml
- Easy to use: contains ready-to-use reagents and protein standard
- Compatible with many detergents
- Less binding variation between different proteins than Bradford assay

References:

1. Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size	EUR
39228.01	250 tests	105,00
39228.02	500 tests	167,00

■ BCA Protein Assay Micro Kit



DANGER

H315-H319-H334-H411 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on the bichinchoninic acid method (1). Proteins reduce alkaline Cu(II) to Cu(I). Bichinchoninic acid forms a purple complex with Cu(I) with an absorbance maximum at 562 nm. The absorbance is directly proportional to protein concentration.

- Fast and sensitive assay: linear detection range from 0.5 - 20 µg protein/ml
- Easy to use: contains ready-to-use reagents and protein standard
- Compatible with many detergents
- Less binding variation between different proteins than Bradford assay

References:

1. Smith, P.K., et al. (1985) Anal. Biochem. **150**, 76 - 85

Cat.No.	Size	EUR
39229.01	480 tests	225,00

■ Bradford reagent, 5x concentrate



DANGER

H314 ♦ GGVSE/ADR 3 II UN2924 ♦ IATA 3 II UN2924 ♦ WGK 1 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

Protein dye reagent for protein quantification after Bradford (1).

- Precise, reproducible and inexpensive
- Fast, only five minutes incubation before reading the sample at 595 nm
- Suitable for micro (1- 25 µg protein/ml) and standard (100 - 1000 µg protein/ml) assays.

50 ml Bradford reagent are sufficient for more than 200 micro assays (1-ml cuvette) or for more than 900 assays in micro titer plates.

References:

1. Bradford, M. M. (1976) Anal. Biochem., **72**, 248 - 254

Cat.No.	Size	EUR
39222.01	50 ml	10,50
39222.02	200 ml	32,00
39222.03	500 ml	69,00

■ Lowry Assay Kit



DANGER

H314-H412 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

The assay bases on Lowry's method (1). It contains ready-to-use reagents and protein standard. The assay is fast and has a sensitivity of 50 µg protein/ml.

Sufficient for 250 2-ml assays.

References:

1. Lowry O. H., et al. (1951) J. Biol. Chem **193**, 265 - 275

Cat.No.	Size	EUR
39236.01	250 tests	70,00

■ ProtQuant Assay Kit



DANGER

H225-H301-H311-H314-H331-H370 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

96-well format assay kit for protein quantification. The kit bases on the precipitation of proteins as insoluble dye complexes with acidic, methanolic amido black 10B solution (1, 2). After precipitation the protein-dye complexes are spinned down. The pellet is washed and resolubilized. The thereby released dye amount is measured at 620 nm. In triple measurement 23 samples can be analysed (plus BSA standard and blank).

- Precise, reproducible, reliable assay data
- Completed in 45 min.
- No interference with detergents or reducing agents
- High-throughput format (96-well plate)
- Linear detection range from approx. 100 - 1750 µg/ml protein

The kit contains 10x dye concentrate, elution solution, bovine serum albumin as standard reference, 96-well plates

References:

1. Popov, N. et al. (1975) Acta Biol. Med. Ger. **34(9)**, 1441-1446

2. Schaffner, W, Weismann, C. (1973) Anal. Biochem. **65**, 502-514

Cat.No.	Size	EUR
39225.01	1 kit	185,00

Enzymology:

see special chapter at p. 327

SingleQuant Assay Kit



DANGER
H225-H314 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

Single tube format assay kit for protein quantification. The assay bases on the precipitation of proteins as insoluble dye complexes with acidic, ethanolic amido black 10B solution (1,2). After precipitation the protein-dye complexes are spinned down. The pellet is washed and resolubilized. The thereby released dye amount is measured at 624 nm.

- Precise, reproducible, reliable assay data
- Completed in only 45 min.
- No interference with detergents or reducing agents
- Detection range starts as low as 2 µg protein.

References:

1. Schaffner W., Weissmann C. (1973) Anal. Biochem. **65**: 502-514.
2. Popov N., Schmitt M., Schulzeck S., Matthias H. (1975) Acta Biol. Med. Ger. **34** (9): 1441-1446.

Cat.No.	Size	EUR
39226.01	200 tests	145,00
39226.02	600 tests	285,00

Enzymes

The use of enzymes of high purity and specificity is essential in protein analysis.

Cyanase™ Nuclease and Salt Active Nuclease are used for effective reduction of viscosity caused by nucleic acids for shorter processing time and increased yield of proteins. Samples can be applied to all downstream applications due to complete removal of Cyanase by Cyanase™ Inactivation Resin.

Salt Active Nuclease is the enzyme of choice for high salt samples. It digests DNA effectively after dissociation of DNA-Protein complexes in high salt concentrations (up to 500 mM NaCl).

Especially in mass spectrometry (MS) only endoproteases with low unspecific cleavage enable high sequence coverage; a decisive factor for successful protein identification. SERVA's MS approved endoproteases guarantee you superior results in MS analysis or protein sequencing.

Cyanase™ Inactivation Resin Cartridges

HS 38220000
Storage temperature +2 °C to +8 °C

Cyanase™ Inactivation Cartridges combine 50 µl of Inactivation Resin into a 700 µl silica based spin column for easy removal of Cyanase™ from any reaction. Each spin column is a 10 - 20 µm pore size/polypropylene, snap off base, with sealable screw cap. Reactions are mixed and incubated inside the spin column in the same manner that is used for the standard inactivation resin. After mixing for 20 min, samples are then spun down into a provided collection tube for downstream processing. No worry of contaminating downstream samples with resin, no volume additions!

Can be used for Pre-PCR treatment of high sensitivity assays. Just treat PCR master mix with Cyanase™, add to column, incubate with resin, and spin down into collection tube. Target and Primers are added after treatment and PCR is run as normal.

- Ideal for high throughput proteomics or nucleic acid dependent applications
- Amplicon and Pre-PCR clean up of master mixes
- Treatment of samples of low volume/unique buffer properties where additional buffer/products are problematic

Kit contains 20 cartridges and 20 collection tubes and caps for sample recovery.

Cat.No.	Size	EUR
18544.01	20 reactions	108,00

Cyanase™ Nuclease

HS 35079090
Storage temperature -15 °C to -25 °C *

Supplied as solution in 50 mM Tris-HCl pH 8.0, 5 mM MgSO₄, 50 % (v/v) glycerol.

Cyanase is a cloned highly active non-Serratia based non-specific endonuclease that degrades single and double stranded DNA and RNA in as little as 1 minute.

Cyanase is easily removed from samples after the reaction is finished using the Cyanase Inactivation Resin (cat. no. 18543). The resin can be easily filtered or spun down to remove from the sample removing the Cyanase with it.

Because of its unique properties, Cyanase is effective for cell lysate clearance, protein and viral purification and nucleic acid removal from samples.

- Fastest nuclease on the market
- Broad pH range
- Active in higher salt concentrations
- Unaffected by lysozyme or detergent
- Easily inactivated and removed
- Unsurpassed stability, can be stored up to 1 year at room temperature with minimal loss of activity

Concentration 50 u/µl
pH optimum pH 7.5 - 8
Salt optimum 20 mM NaCl
Temperature optimum 24 °C - 37 °C

Unit definition: One Unit is the amount of enzyme that degrades 3 µg of full length λ DNA completely at 37 °C in 1 minute in 50 mM Tris-HCl pH 8.0, 6 mM MnSO₄.

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18542.01	10.000 U	97,00
18542.02	25.000 U	209,00

Cyanase™ Inactivation Resin

HS 38220000
Storage temperature +2 °C to +8 °C

Cyanase Inactivation Resin is a proprietary blend of Cyanase Inhibitor Protein coupled to Sepharose® Fast Flow Resin creating a novel method for inactivating and removing the Cyanase enzyme prior to downstream applications. No more worries about downstream contamination with nucleases or difficult removal processes which may compromise product integrity.

Average Particle Size: 90 µm in 50 % buffer slurry.

- Removal of Cyanase Nuclease simple and easy in as little as 20 min.
- No optimization needed
- Active over a wide range of conditions
- No interactions with other proteins or targets
- Extremely tight interaction between Cyanase and resin

Cyanase = trademark of RiboSolutions, Inc.

Sepharose = registered trademark of DE Healthcare

Cat.No.	Size	EUR
18543.01	1 ml	72,00
18543.02	5 ml	325,00

Deoxyribonuclease I from Bovine Pancreas

min. 3000 Kunitz units/mg lyophil.

(DNase I; Deoxyribonucleodepolymerase; Deoxyribonuclease 5'-oligonucleotide hydrolase)

EC 3.1.21.1 ♦ M_r 31 000 ♦ CAS [9003-98-9]

EINECS 232-667-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Cleaves preferentially double-stranded DNA (in the presence of Mg⁺⁺-ions single stranded DNA) in oligonucleotides with 5'-terminal phosphate groups.

Unit definition: 1 Kunitz unit catalyzes an increase in absorption of 0.001 at 260 nm per minute at 25 °C, pH 5.0 when acting on highly polymerized calf thymus DNA (1).

Activity: min. 3000 Kunitz units/mg lyophilisate

References:

1. Kunitz, M. (1950) J. Gen. Physiol. **33**, 349-62
2. Laskowski, M. Sr. (1971) The Enzymes **IV**, 3rd Ed. (Boyer, P.D.ed.) Acad. Press N.Y. 289-311
3. Moore, S. (1981) The Enzymes **XIV**, 3rd Ed. (Boyer, P.D. ed.) Acad. Press N.Y. 281-96
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.83, 10.6-10.12, 15.14, 15.16, 15.27-15.31, 13.24-13.25, 13.28-13.29)

Cat.No.	Size	EUR
18535.01	25 mg	45,00
18535.02	100 mg	135,00

Endoproteinase Glu-C (V8 proteinase), MS approved from *Staphylococcus aureus* lyophil.

3.4.21.19 ♦ CAS [66676-43-5]

HS 35079090

Storage temperature -15 °C to -25 °C *

Endoproteinase Glu-C (V8) is a serine endoproteinase isolated from *Staphylococcus aureus* V8.

Approved quality for use with in-gel digestion and mass spectrometric analysis.

The specificity of Glu-C is primarily determined by the buffer pH and composition. Using phosphate buffers (pH 7.8), Glu-C will cleave at both glutamyl and aspartyl bonds. Ammonium bicarbonate buffer (pH 7.8) will lead to a preferential cleavage of glutamyl bonds.

The presence of proline residues on the carboxy side of the peptide bond inhibits the cleavage.

Due to its highly specific cleavage of peptides Glu-C is used in proteomics for peptide mapping and protein sequence work.

Cat.No.	Size	EUR
20986.01	2 x 25 µg	89,00

Lysozyme from chicken egg white

min. 100 000 units/mg cryst.

(Muramidase; mucopeptide-glycohydrolase; mucopeptide N-acetyl-muramoylhydrolase)

EC 3.2.1.17 ♦ M_r ca. 14 400 ♦ CAS [12650-88-3]



DANGER

H334 ♦ EINECS 235-747-3 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Crystalline powder in hydrochloride form. Lysozyme hydrolyzes the β 1 → 4 linkages of the murein between N-acetylmuramic acid and N-acetyl-D-glucosamin, and degrades the heteroglycan chain to disaccharides. This reaction leads to cell lysis in most Gram-positive bacteria e.g. *Micrococcus luteus*. Lysis can be prevented if the reaction is performed in an isotonic sucrose medium. Under these assay conditions protoplasts are produced which no longer have a cell wall. The lysis of *Micrococcus luteus* cells is used for the activity testing of lysozyme. In Gram-negative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca²⁺ ions are removed by treatment with e.g. EDTA, the murein becomes susceptible to lysozyme. Suitable for hydrolysis of bacterial cell walls and of proteoglycans (1, 2, 4).

Unit definition: 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 7.0, in a suspension of *Micrococcus luteus* cells (reaction volume 3 ml, light path 1 cm) (3).

Isoelectric point: 10.5 - 11.0

Optimum pH: 9.2

References:

1. Imoto, T. et al. (1972) The Enzymes **VII**, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.22, 1.34, 1.36, 1.38, 17.38, 1.29, B.17)
3. Shugar, D. (1952) Biochim. Biophys. Acta **8**, 302-9
4. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
28262.02	2,5 g	28,00
28262.03	10 g	73,00
28262.04	50 g	286,00

Proteinase K from *Tritirachium album*

solution ≥ 20 mg/ml, ≥ 600 U/ml

EC 3.4.21.14 ♦ M_r M_r 28,000



DANGER

H334 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition: 1 mAnson Unit is defined as the amount of enzyme that liberates Folin-positive amino acids and peptides, corresponding to 1 µmol tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4)

Activity(U/ml): ≥ 600

Inhibitors for Proteinase: AEBSF (cat. no. 12745), PEAFBLOC® SC (cat. no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33755.01	1 ml	30,00
33755.02	5 ml	80,00
33755.03	10 ml	145,00

■ Proteinase K from *Tritirachium album*

min. 8 DMC-U/mg lyophil.

EC 3.4.21.14 ♦ M_r ca. 28 000 ♦ CAS [39450-01-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 254-457-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serin protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition 1 DMC-unit catalyzes the hydrolysis of 1 μmole dimethyl casein per minute at 25 °C, pH 7.0; the liberated amino groups are determined with 2,4,6-trinitrobenzene sulfonic acid (2).

Activities in other units ca. 30 milliAnson-units.

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat. no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al. (1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-98

Cat.No.	Size	EUR
33752.01	25 mg	27,00
33752.02	100 mg	62,00
33752.03	500 mg	182,00

■ Ribonuclease A from bovine pancreas

min. 80 Kunitz units/mg lyophil.

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligo-nucleotidohydrolase)

EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

An endonuclease which specifically attacks pyrimidine sites (Py/pN) at the 3'-phosphate group. This preparation is salt-free, protease-free and chromatographically homogeneous.

RNase A content: min. 90 % by ion exchange chromatography. DNase not detected.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0

References:

1. Kunitz, M. (1946) J. Biol. Chem. **164**, 563-8
2. Krupp, G. & Gross, H.J. (1979) Nucl. Acids Res. **6**, 3481-90
3. Levy, C.C. & Kaepetzky, T.P. (1980) J. Biol. Chem. **255**, 2153-9
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.81)
5. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (3.13.1, 5.5.2, 4.7.3, 7.3.8)

Cat.No.	Size	EUR
34388.01	50 mg	35,00
34388.02	250 mg	125,00

■ Ribonuclease A from bovine pancreas

min. 70 Kunitz units/mg lyophil.

EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

RNase A content approx. 70 %.

DNase-free RNase: To prepare RNase A free of DNase dissolve RNase A in TE-buffer at 1 mg/ml and boil 10 to 30 minutes. Store aliquots at -20 °C to prevent microbial growth.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0.

Cat.No.	Size	EUR
34390.02	100 mg	23,00
34390.03	1 g	152,00

■ Salt Active Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C **

Supplied as solution in 25 mM Tris-HCl pH 7.5, 5 mM MgCl₂, 0.5 M NaCl, 0.01 % Triton X[®]-100, 50 % (v/v) glycerol.

Salt Active Nuclease is a highly active non-specific endonuclease from a marine bacterium that cleaves both DNA and RNA. It digests DNA versus RNA in a 10:1 ratio.

Salt Active Nuclease has optimum activity at 0.5 M NaCl, is active in the pH range of 7 to 10 and low temperatures, which makes the enzyme ideal for use in removal of nucleic acids from cell extracts and proteins samples.

It will remove contaminating nucleic acids in a traditional protein buffer system. That guarantees the full protection of proteins while the nucleic acids are fully removed.

- Non specific endonuclease
- Optimum activity at high salt concentration (0.5 M NaCl)
- Active at low temperatures (20 % at 6 °C)
- Broad pH range
- Temperature stable

Specific activity 400.000 Units/mg
pH optimum pH 9
Salt optimum 0.5 M NaCl

Unit definition: One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute at 37 °C, using 50 μg/ml calf thymus DNA in a buffer consisting of 25 mM Tris-HCl, pH 8.5 (25 °C), 5 mM MgCl₂, 500 mM NaCl.

Cat.No.	Size	EUR
18541.01	5.000 U	92,00
18541.02	25.000 U	390,00

■ Trypsin NB Premium Grade, MS approved from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Approved for use in in-gel digestion and mass spectrometry analysis. Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Premium Grade, MS approved is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues of trypsin results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Premium Grade, MS approved is purified by chromatography. No chymotryptic activity is detectable. Every lot is approved for use in in-gel digestion and mass spectrometry analysis. Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37284.01	4 x 25 μg	78,00

■ Trypsin NB Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Sequencing Grade, modified, is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37283.01	4 x 25 μg	59,00

Protein/Phosphatase Inhibitors

During the preparation of cell extracts proteases are inevitably released from bacteria, yeast, tissue or cell cultures. To achieve highest possible recoveries of native proteins the addition of inhibitors of these enzymes is essential.

Optimized for protein isolation from various sources and inhibition of a broad range of proteases, SERVA's inhibitor mixes maintain the integral stability of proteins. For customized application we offer a broad range of individual protease inhibitors of high quality.

For studying the roles of kinases and phosphatases in signaling pathways, choosing the right phosphatase inhibitor is very important. To ensure immediate inhibition of all phosphatase activities during cell lysis, use SERVA's fine-tuned and also broadly effective inhibitor mixes.

■ AEBF-HCl research grade

(4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride)
 $C_8H_{10}FNO_2S \cdot HCl$ ♦ M_r 239.7 ♦ CAS [30827-99-7]

WGK 1 ♦ HS 29214900

Storage temperature +2 °C to +8 °C

Irreversible inhibitor of thrombin and other serine proteases (e.g. chymotrypsin, kallikrein, plasmin, proteinase K, trypsin). Inhibits by acylation of the active site of the enzyme. AEBF is water-soluble and much less toxic than PMSF and DFP. Aqueous solutions are stable between pH 5-6; limited stability above pH 7.5.

Assay (HPLC) min. 98.0 %

References:

1. Walsmann, P. et al. (1972) Acta biol. med. germ. **28**, 577-585
2. Marwardt, F. et al. (1973) Thrombosis Res. **2**, 343-348
3. Taylor, J.A. et al. (1995) Immunology **86**, 629-635

Cat.No.	Size	EUR
12745.02	500 mg	105,00
12745.03	1 g	180,00

■ ε-Aminocaproic acid analytical grade

(6-Amino-n-hexanoic acid)
 $C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [60-32-2]

EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

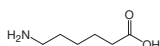
Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

References:

1. Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11
2. Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3

Cat.No.	Size	EUR
12548.03	100 g	31,00



■ Aprotinin from bovine lung lyophil.

(Trypsin inhibitor from bovine lung; Trasylol®)
 M_r ca. 6500 ♦ CAS [9087-70-1]



WARNING

H302 ♦ EINECS 232-994-9 ♦ WGK 1 ♦ HS 35040090
 Storage temperature +2 °C to +8 °C

Purified inhibitor of trypsin, chymotrypsin, plasmin and especially kallikrein. For *in vitro* inhibition of fibrinolytic activity in blood samples (1).

Unit definition: 1 IU (inhibitor unit) inhibits 1 U trypsin as defined by cleavage of 1 μmol BAEE (N-benzoyl-L-arginine ethyl ester) per minute (see under trypsin, cat.no. 37291).

Activity in other units: min. 3 Ph. Eur. Units (PEU)/mg, based on dried substance.

Unit definition: 1 Ph. Eur. Unit of aprotinin inhibits 50 % of the enzymatic activity of 2 microkatal trypsin, measured with BAEE as substrate at pH 8.0 and 25 °C.

Activity in other units: min. 5850 Kallikrein Inactivator Units (KIU)/mg, based on dried substance. (KIU = PEU x 60 x 32,5).

Trasylol® = registered trademark of Bayer AG

References:

1. Trautschold, E. et al. (1967) Biochem. Pharmacol. **16**, 59-72

Cat.No.	Size	EUR
13718.01	10 mg	40,00
13718.02	25 mg	80,00
13718.03	100 mg	285,00

■ Benzamidine-HCl research grade

$C_7H_7N_2 \cdot HCl$ ♦ M_r 156.62 (anhydr.) ♦ CAS [1670-14-0]



WARNING

H315-H319-H335 ♦ EINECS 216-795-4 ♦ WGK 1 ♦ HS 29252900

Storage temperature +2 °C to +8 °C

Potent inhibitor of thrombin and trypsin.

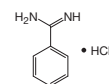
Assay (titr.) min. 99.0 %

Water content max. 15.0 %

References:

1. Henkel, H.J. et al. (1983) Pharmazie **38**, 342-6

Cat.No.	Size	EUR
14525.01	5 g	19,00
14525.02	25 g	37,00



■ Bestatin research grade

([(2S, 3R)-3-Amino-2-hydroxy-4-phenylbutanoyl]-L-leucine)

$C_{16}H_{24}N_2O_4 \cdot HCl$ ♦ M_r 344.8 ♦ CAS [65391-42-6]

WGK 1 ♦ HS 29224985

Storage temperature -15 °C to -25 °C

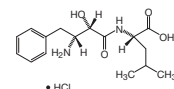
Aminopeptidase B and leucine aminopeptidase inhibitor (1, 2) with multi-pharmacological functions (3). Inhibitor of enkephalin degradation in cell preparations from brain (4). Anticarcinogenic (5, 6). Immunomodulating agent (7, 8). Inhibitor of leukotriene A4 hydrolase (9).

Assay (HPLC) min. 90.0 %

References:

1. Iwahashi, M. et al. (1994) Anticancer Res. **14**, 1563-8
2. Umezawa, H. (1984) Rev. Infect. Dis. **6**, 412-20
3. Ota, K. (1991) Biomed. Pharmacother. **45**, 55-60
4. Orning, L. et al. (1991) J. Biol. Chem. **266**, 1375-8
5. Umezawa, H. et al. (1976) J. Antibiot. **29**, 97-9
6. Burley, S.K. et al. (1991) Proc. Natl. Acad. Sci. USA **88**, 6912-20
7. Mathe, G. (1991) Biomed. Pharmacother. **45**, 49-54
8. Cohen, M.L. et al. (1983) J. Pharmacol. Exp. Ther. **224**, 379-85
9. Ino, K. et al. (1991) Biotherapy **3**, 351-7

Cat.No.	Size	EUR
14980.02	5 mg	57,50



L-1-Chloro-3-tosylamido-4-phenyl-2-butanone

research grade

(TPCK; N α -p-Tosyl-L-phenylalanine chloromethyl-ketone)

C₁₇H₁₈ClNO₃S $\blacklozenge$ M_r 351.85 $\blacklozenge$ CAS [402-71-1]

EINECS 206-954-6 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29350090

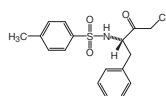
Storage temperature -15 °C to -25 °C

Inactivates chymotrypsin (but not trypsin) by specific reaction with histidine.

Assay (TLC) min. 98.0 %

References:

1. Ong, E.B. et al. (1965) J. Biol. Chem. **240**, 694-8



Cat.No.	Size	EUR
17016.02	250 mg	38,00

L-1-Chloro-3-tosylamido-7-amino-2-heptanone-HCl

research grade

(TLCK; N α -p-Tosyl-L-lysine chloromethyl ketone)

C₁₄H₂₁ClN₂O₃S·HCl $\blacklozenge$ M_r 369.31 $\blacklozenge$ CAS [4272-74-6]

EINECS 224-266-4 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29350090

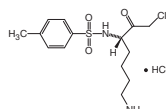
Storage temperature -15 °C to -25 °C

Inactivates trypsin (but not chymotrypsin) by specific reaction with histidine.

Purity (TLC) one spot

References:

1. Shaw, E. et al. (1965) Biochemistry **4**, 2219-24



Cat.No.	Size	EUR
17013.02	100 mg	65,00
17013.04	250 mg	155,00

Chymostatin research grade

([(S)-1-Carboxy-2-phenylethyl]-carbamoyl- α -2-iminohexahydro-4(S)-pyrimidyl)-(S)-glycyl-X-phenylalaninal)
CAS [9076-44-2]

HS 29241900

Storage temperature -15 °C to -25 °C

Mixture of 3 components differing in amino acid composition at position X with component A as major form (approx. 70 %):

Component A (C₃₁H₄₁N₇O₆;

Mr: 607.7): X = L-Leu

Component B (C₃₀H₃₉N₇O₆;

Mr: 593.7): X = L-Val

Component C (C₃₁H₄₁N₇O₆;

Mr: 607.7): X = L-Ile

Inhibitor of many proteinases e.g. chymotrypsin, chymotrypsin-like serine proteinases and lysosomal cysteine proteinases e.g. cathepsins B, H, and L (1, 2). Inhibits eosinophil peroxidase release from activated human eosinophils (3). Inhibitor of mammalian protein methylesterase activity (4). Effects on globin hydrolysis by cultured malaria parasites (5). Specific inhibitor of a chymostatin sensitive angiotensin II generating enzyme (6, 7).

References:

1. Tatsuta, K. et al. (1973). J. Antibiot. **26**, 625-46
2. Stein, R.L. & Strimpler, A.M. (1987) Biochemistry **26**, 2611-5
3. Matsunaga, Y. et al. (1994) Arch. Biochem. Biophys. **312**, 67-74
4. Veeraragavan, K. & Gagnon, C. (1987) Biochem. Biophys. Res. Commun. **142**, 603-8
5. Rosenthal, P.J. (1995) Exp. Parasitol. **80**, 272-81
6. Okunishi, H. et al. (1993) Jpn. J. Pharmacol. **62**, 207-10
7. Okamura, T. et al. (1990) J. Cardiovasc. Pharmacol. **15**, 353-9

Cat.No.	Size	EUR
17158.01	5 mg	65,00
17158.02	25 mg	275,00

Diisopropylfluorophosphate pure

(DFP; Diisopropyl phosphorofluoridate)

C₆H₁₄FPO₃ $\blacklozenge$ M_r 184.15 $\blacklozenge$ CAS [55-91-4]



DANGER

H300-H310-H314-H330 $\blacklozenge$ GGVSE/ADR 6.1 I UN2927

$\blacklozenge$ IATA 6.1 I UN2927 $\blacklozenge$ EINECS 200-247-6 $\blacklozenge$ WGK 2 $\blacklozenge$

HS 29199000

Storage temperature +2 °C to +8 °C

Acetylcholinesterase inhibitor. Highly toxic; do not inhale vapors and avoid skin contact. Protect from moisture.

Assay (GC) ca. 97.0 %

References:

1. Wilson, B.W. & Walker, C.R. (1974) Proc. Natl. Acad. Sci. USA **71**, 3194-8

Cat.No.	Size	EUR
77205.01	1 g	255,00

E-64 research grade

(trans-Epoxy succinyl-L-Leucylamido-(4-Guanidino) butane; Epoxy[L-3-trans-Carboxy oxiran-2-Carbonyl]-L-Leu-Agmatin)

C₁₅H₂₇N₅O₅ $\blacklozenge$ M_r 357.4 $\blacklozenge$ CAS [66701-25-5]

HS 29241900

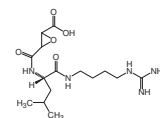
Storage temperature -15 °C to -25 °C

Inhibitor for papain and other cysteine (thiol) proteases. Effects on metastasis formation in mice (5).

Assay (HPLC) min. 99.0 %

References:

1. Hanada, K. et al. (1978) Agric. Biol. Chem. **42**, 523, 529
2. Varughese, K.J. et al. (1989) Biochemistry **28**, 1330-2
3. Nakao, H. et al. (1989) Int. J. Biochem. **21**, 139-42
4. Jani, J.P. et al. (1992) Oncol. Res. **4**, 59-63
5. Leto, G. et al. (1994) In Vivo **8**, 231-6



Cat.No.	Size	EUR
21100.01	5 mg	72,00
21100.02	25 mg	263,00

E-64 d

(EST; L-3-trans-ethoxycarbonyloxirane-2-carbonyl)-L-leucine-(3-methyl butyl)amide; (2S,3S)-trans-epoxysuccinyl-L-leucylamido-3-methylbutane ethyl ester)

C₁₇H₃₀N₂O₅ $\blacklozenge$ M_r 342.4 $\blacklozenge$ CAS [88321-09-9]

HS 29241900

Storage temperature -15 °C to -25 °C

Membrane permeable inhibitor of lysosomal cysteine proteases (Cathepsin B/H/L and Calpain) analog of E-64 c.

Assay (HPLC) min. 98.0 %

References:

1. Tamai, M. et al. (1986) J. Pharmacobio. Dyn. **9**, 672
2. Tamai, M. et al. (1987) Chem. Pharm. Bull. **35**, 1098
3. McGowan, E.B. et al. (1989) Biochem. Biophys. Res. Commun. **158**, 432
4. Incomata, M. et al. (1996) Arch. Biochem. Biophys. **328**, 129

Cat.No.	Size	EUR
21102.01	1 mg	80,00
21102.02	5 mg	285,00

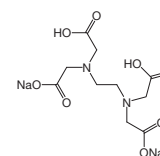
Ethylenediamine tetraacetic acid-Na₂-salt analytical grade

(Versene disodium; EDTA-disodium)

C₁₀H₁₄N₂O₈·Na₂·2H₂O $\blacklozenge$ M_r 372.3 $\blacklozenge$ CAS [6381-92-6]

EINECS 205-358-3 $\blacklozenge$ WGK 2L $\blacklozenge$ HS 29212900

Assay (titr.) min. 99.0 %



Cat.No.	Size	EUR
11280.01	100 g	12,50
11280.02	1 kg	42,00
11280.03	5 kg	165,00

2-Glycerolphosphate-Na₂-salt

(Sodium-β-glycerophosphate)

C₃H₇O₆P·Na₂·5H₂O ♦ M_r 306.1 ♦ CAS [13408-09-8]

EINECS 212-464-3 ♦ WGK 1 ♦ HS 29199000

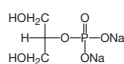
Storage temperature +2 °C to +8 °C

Optically inactive. Substrate for assay phosphatases. Inhibitor of serine and threonine phosphatase.

Assay (titr.) min. 99.0 %

References:

1. Heppel, L.A. (1955) Methods. Enzymol. **2**, 530-3



Cat.No.	Size	EUR
23330.02	100 g	92,00

Imidazole research grade

C₃H₄N₂ ♦ M_r 68.08 ♦ CAS [288-32-4]



DANGER

H301-H314-H361d ♦ GGVSE/

ADR 8 III UN2923 ♦ IATA 8 III UN2923 ♦

EINECS 206-019-2 ♦ WGK 1L ♦ HS 29332990

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
26081.01	100 g	25,00
26081.02	500 g	79,00



Leupeptin

(Acetyl-L-leucyl-L-leucyl-L-argininal)

C₂₀H₃₈N₆O₄·1/2H₂SO₄ ♦ M_r 475.6 ♦ CAS [103476-89-7]



WARNING

H302-H332 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

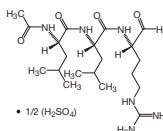
Inhibitor of serine and cysteine proteases.

Assay (HPLC) min. 96.5 %
(sum of tautomeric isomers)

References:

1. Umezawa, H. (1976) Methods Enzymol. **45**, 678-83
2. Carlin, C. et al. (1994) J. Cell. Physiol. **160**, 427-34
3. Savory, P.J. & Rivett, A.J. (1993) Biochem. J. **289**, 45-8
4. Eto, I. & Bandy, M.D. (1990) Mol. Cell. Biochem. **94**, 19-36
5. Benistani, B. et al. (1994) Biochim. Biophys. Acta **1223**, 84-90

Cat.No.	Size	EUR
51867.02	10 mg	40,00
51867.03	50 mg	145,00



α₂-Macroglobulin from human plasma lyophil.

(α₂-M)

M_r 725 000 ♦ CAS [95568-41-5]

HS 35040090

Storage temperature -15 °C to -25 °C

Homogeneous by SDS-PAGE. Contains glycine as stabilizer. Major plasma protein in humans. Functions range from ion transport to the inhibition of proteinases. Inhibits most endoproteinases. Elevated levels are seen in clinical conditions such as cirrhosis, nephrotic syndrome, severe burns and diabetes (1). Package weight refers to weight of α₂-macroglobulin.

References:

1. Barrett, A.J. (1981) Methods Enzymol. **80**, 737-54
2. Travis, J. & Salvesen, G.S. (1983) Ann. Rev. Biochem. **52**, 655-709

Cat.No.	Size	EUR
28301.01	1 mg	89,00

PEFABLOC® SC

[(4-(2-Aminoethyl)benzenesulfonyl)fluoride-HCl]

C₈H₁₀NSO₂F·HCl ♦ M_r 239.7 ♦ CAS [30827-99-7]

HS 29214900

Storage temperature +2 °C to +8 °C

Protease inhibitor with major advantages over other inhibitors:

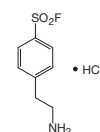
Excellent stability at neutral pH. Ready solubility in aqueous

buffers; LD₅₀ (oral) 2800 mg/kg. Broad specificity for serine proteases.

Minimum effect on cell growth.

Purity (HPLC) min. 95.0 %

Pefabloc = registered Trademark of Pentapharm. Ltd.



Cat.No.	Size	EUR
31682.01	100 mg	44,00
31682.02	500 mg	185,00

Pepstatin A

(Isovaleryl-L-valyl-L-valyl-4-amino-3-hydroxy-6-methylheptanoyl-L-alanyl-4-

amino-3-hydroxy-6-methylheptanoic acid; X-Val-Val-statyl-Ala-statin)

C₃₄H₆₃N₅O₉ ♦ M_r 685.9 ♦ CAS [26305-03-3]

EINECS 247-600-0 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Inhibitor of aspartic proteases, e.g. pepsin, renin, cathepsin D (1-3) and of retroviral proteases (4-7).

Assay (HPLC) min. 98 %

References:

1. Umezawa, H. (1976) Meth. Enzymol. **45**, 689-93
2. McCaffrey, G. & Jamieson, J.C. (1993) Comp. Biochem. Physiol. **104**, 91-4
3. Bailly, E. et al. (1991) Exp. Parasitol. **72**, 278-84
4. Baum, E.Z. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10023-7
5. Grinde, B. et al. (1989) AIDS Res. Hum. Retroviruses **5**, 269-74
6. von der Helm, K. et al. (1989) FEBS Lett. **247**, 349-52
7. Katoh, I. et al. (1987) Nature **329**, 654-6

Cat.No.	Size	EUR
52682.02	5 mg	18,00
52682.03	25 mg	65,00
52682.04	100 mg	205,00

1,10-Phenanthroline analytical grade

(o-Phenanthroline)

C₁₂H₈N₂·H₂O ♦ M_r 198.2 ♦ CAS [5144-89-8]



DANGER

H301-H400-H410 ♦ EG-Index 613-092-00-8

♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 200-629-2 ♦ WGK 3 ♦ HS 29339980

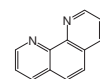
For the determination of iron in heme compounds. Metalloprotease inhibitor.

Assay (Titr.) min. 99.0 %

References:

1. Cameron, B.F. (1970) Anal. Biochem. **35**, 515-7

Cat.No.	Size	EUR
32010.01	5 g	20,00
32010.02	25 g	55,00



Phenylmethylsulfonyl fluoride research grade

(PMSF; Benzylsulfonyl fluoride; α-Toluenesulfonyl fluoride)

C₇H₇FO₂S ♦ M_r 174.19 ♦ CAS [329-98-6]



DANGER

H301-H314 ♦ GGVSE/ADR 8 II UN2923

♦ IATA 8 II UN2923 ♦ EINECS 206-350-2 ♦ WGK 1 ♦

HS 29049095

Inhibits trypsin and chymotrypsin (1). Non-inhibitory to cholinesterase. Less toxic than diisopropylfluorophosphate (2). Inactivation of PMSF in buffer (3).

Assay (GC) min. 99.0 %
MP 90 - 94 °C

References:

1. Prouty, W.F. & Goldberg, A.L. (1972) J. Biol. Chem. **247**, 3341-52
2. Fahrney, D.E. & Gold, A.M. (1963) J. Am. Chem. Soc. **85**, 997-1009
3. James, G.T. (1978) Anal. Biochem. **86**, 574-9

Cat.No.	Size	EUR
32395.02	5 g	21,00
32395.03	25 g	69,00
32395.04	100 g	198,00



Phosphatase-Inhibitor-Mix I, powder



DANGER
H302-H314-H361 ♦ WGK 1 ♦ HS 38220000

Mixture of 5 water-soluble inhibitors against acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, and protein-tyrosine phosphatase. Contains imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate. The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39050.01	1 vial	35,00
39050.02	5 vials	145,00
39050.03	10 vials	245,00

Phosphatase-Inhibitor-Mix II, solution

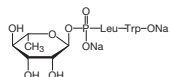
HS 38220000
Storage temperature +2 °C to +8 °C

Mixture of 7 different inhibitors dissolved in water, suitable for the inhibition of acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, protein-tyrosine phosphatase, and serine/threonine phosphatase. Contains EDTA, β-glycerophosphate-disodium salt, imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate. 1 ml solution is suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39055.01	1 vial	55,00
39055.02	5 vials	160,00
39055.03	10 vials	265,00

Phosphoramidon research grade

([N-(α-Rhamnopyranosyloxyhydroxyphosphinyl)-L-Leu-L-Trp-Na·2H₂O])
C₂₃H₃₂N₃O₁₀P·Na₂ ♦ M_r 587,5 ♦ CAS [119942-99-3]



HS 29419000
Storage temperature +2 °C to +8 °C

Inhibitor for thermolysin and neutral endopeptidase-24.11 (ANP Degradation Enzyme). Inhibits the activity of 'Endothelin Converting Enzyme' (3-9). Microbial product.

Store dry and protect from light!

Assay (HPLC) min. 90.0 %

References:

- Suda, H. et al. (1973) J. Antibiotics **26**, 621
- Roques, B.P. & Beaumont, A. (1990) Trends Pharmacol. Sci. **2**, 245-9
- Gettins, P. (1988) J. Biol. Chem. **263**, 10208-11
- Ikegawa, R. et al. (1990) Biochem. Biophys. Res. Commun. **171**, 669-75
- Rae, G.A. et al. (1993) Eur. J. Pharmacol. **240**, 113-9
- Patel, K.V. & Schrey, M.P. (1995) Br. J. Cancer **71**, 442-7
- Fawzi, A.B. et al. (1994) Anal. Biochem. **222**, 342-50
- Umekawa, T. et al. (1994) J. Pharmacol. Exp. Ther. **269**, 860-6
- Ohnaka, K. et al. (1993) J. Biol. Chem. **268**, 26759-66

Cat.No.	Size	EUR
32753.01	5 mg	120,00

Protease-Inhibitor Mix HP PLUS

HS 38220000
Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine proteases as well as aminopeptidases, Thermolysin and other microbial metallo endoproteases. It is especially recommended for purification of polyHis-tagged proteins and for other applications, where metal-chelators should be avoided. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and Phosphoramidon. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39107.01	1 vial	45,00
39107.02	5 vials	185,00
39107.03	10 vials	320,00

Protease-Inhibitor Mix G

WGK 2 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 5 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine-, serine- and metallo proteases. Recommended for general applications and where the use of organic solvents should be avoided. Contains AEBSF, Aprotinin, E-64, Leupeptin and EDTA. The content of 1 vial dissolved in 1 ml water results in a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39101.01	1 vial	26,00
39101.02	5 vials	110,00
39101.03	10 vials	195,00

Protease-Inhibitor Mix B

WGK 1 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Mixture of 5 protease inhibitors with broad range of activity against aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with bacterial extracts. Contains AEBSF, Bestatin, E-64, Pepstatin A and EDTA. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39105.01	1 vial	43,00
39105.02	5 vials	165,00
39105.03	10 vials	295,00

Protease-Inhibitor Mix FY



DANGER
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 1 ♦

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 4 protease inhibitors with broad specificity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases. It is especially formulated for use with fungal and yeast extracts. Contains AEBSF, E-64, Pepstatin A, and 1,10-Phenanthroline. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39104.01	1 vial	35,00
39104.02	5 vials	150,00
39104.03	10 vials	275,00

Protease-Inhibitor Mix P



DANGER
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 2 ♦

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 6 protease inhibitors with broad range of activity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with plant extracts. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and 1,10-Phenanthroline. Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39103.01	1 vial	43,00
39103.02	5 vials	165,00
39103.03	10 vials	295,00

■ Protease-Inhibitor Mix M

EINECS 200-664-3 ♦ WGK 1 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine-proteases as well as aminopeptidases (metallo proteases). It is especially formulated for use with extracts from mammalian tissue, but can also be used with other extracts. It is free of EDTA and contains AEBSF, Aprotinin, Bestatin, E-64, Leupeptin and Pepstatin A.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39102.01	1 vial	49,00
39102.02	5 vials	195,00
39102.03	10 vials	325,00

■ Protease-Inhibitor Mix HP

HS 38220000
Storage temperature -15 °C to -25 °C

Special mixture of 4 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine- and serine proteases. Free of metal-chelators. Recommended for purification of polyHis-tagged proteins and for other applications where metal-chelators should be avoided. Contains AEBSF, Aprotinin, E-64, and Leupeptin.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39106.01	1 vial	26,00
39106.02	5 vials	110,00
39106.03	10 vials	195,00

■ Sodium molybdate-2H₂O analytical grade

Na₂MoO₄·2H₂O ♦ M_r 241.95 ♦ CAS [10102-40-6]

EINECS 231-551-7 ♦ WGK 1 ♦ HS 28417000

Ph. Eur. For electron microscopy. Inhibitor of Acid Phosphatase and Phosphoprotein Phosphatase.

Assay min. 99.0 %
Heavy metals (Pb) max. 100 ppm

Cat.No.	Size	EUR
30207.01	50 g	28,00

■ Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.

M_r ca. 22 000 ♦ CAS [9035-81-8]

EINECS 232-906-9 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Salt-free. Trypsin is inhibited in a molar ratio of 1:1. Inhibits as well chymotrypsin (2), plasmin, kallikrein, thrombin and other proteolytic enzymes.

Unit definition: 1 IU (inhibitor units) inhibits 1 U trypsin as defined by cleavage of 1 μmole BAEE (N-benzoyl-L-arginine ethyl ester) per minute.

References:

1. Rachis, J.J. et al. (1962) Arch. Biochem. Biophys. **98**, 471-8
2. Bidlmeyer, U. et al. (1972) Biochemistry **11**, 3303-10

Cat.No.	Size	EUR
37329.01	250 mg	53,00

Detergents

Choose from a wide range of detergents, enabling you to solve the common problems faced in protein research like denaturation, solubilization, stabilization, reconstitution and crystallization of your proteins.

To achieve best results in proteomic applications the quality of used detergents is crucial. Moreover, depending on the sample, different combinations of zwitterionic detergents have to be used for optimal solubilization of proteins and protein complexes.

To find the best solution for your application, SERVA offers the **SERVA 2D PAGE Detergent Sampler** (cat. no. 20784).

The optimal resolution of protein complexes in Blue Native PAGE depends on the combination of used detergents for solubilization. To ease finding the best combination of detergents, SERVA offers the **SERVA BN PAGE Sampler** (cat. no. 20785).

Detergents and Applications: Suitable for 2D Polyacrylamide Gel Electrophoresis

Description	Cat. No.	Size
Octyl-β-D-glucopyranoside	31055.02	250 mg
	31055.03	1 g
	31055.01	5 g
Triton® X-100	37240.01	500 g
	37240.02	5 kg
16-BAC	14836.01	25 g
	14836.02	100 g
CHAPS	17038.01	1 g
	17038.02	5 g
	17038.03	25 g
	17038.04	100 g
Sulfobetaine SB 12	20761.02	10 g
	20761.03	50 g
Sulfobetaine SB 3-10	20756.01	5 g
	20756.02	25 g
ASB-14	20757.01	1 g
	20757.02	5 g
ASB-16	20758.01	1 g
	20758.02	5 g
ASB-C7BzO	20759.01	1 g
	20759.02	5 g
SERVA 2D PAGE Detergent Sampler	20784.01	1 kit
NDSB-201	20762.01	50 g
	20762.02	250 g

Detergents and Applications: Suitable for Blue Native Electrophoresis

Description	Cat. No.	Size
Digitonin	19550.01 19550.02	500 mg 1 g
Digitonin water soluble	19551.01 19551.02	250 mg 1 g
Dodecyl-β-D-maltoside	20780.01 20780.02 20780.03	100 mg 500 mg 1 g
Octyl-β-D-glucopyranoside	31055.02 31055.03 31055.01	250 mg 1 g 5 g
Triton® X-100	37240.01 37240.02	500 g 5 kg
SERVA BN PAGE Detergent Sampler	20785.01	1 kit

ASB-14 research grade

(Amidosulfobetaine-14; 3-[N,N-Dimethyl(3-myristoylamino)propyl]ammonio]propanesulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-14 shows better protein solubilization properties than CHAPS, by which the identification of previously undetected membrane proteins was enabled.

CMC 8 mM (20 – 25 °C)
Purity (HPLC) min. 98.0 %

References:

- Carroll, J., et al., J. Biol. Chem. **277**, 50311
- Herbert, B., (1999) Electrophoresis **20**, 660
- Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20757.01	1 g	32,00
20757.02	5 g	115,00

ASB-16 research grade

(Amidosulfobetaine-16; 3-[N,N-Dimethyl-N-(3-palmitamidopropyl)ammonio]propane-1-sulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-16 shows better protein solubilization properties than CHAPS and in some cases than ASB-14, resulting in improved detection of membrane proteins by 2D-electrophoresis.

CMC 8 mM (20 – 25 °C)
Assay (HPLC) min. 98.0 %

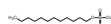
References:

- Flatman, P. W., et al., (2005), J. Physiol. **563**, 421
- Herbert, B., (1999) Electrophoresis **20**, 660
- Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20758.01	1 g	32,00
20758.02	5 g	115,00

ASB-C7BzO research grade

(C7BzO; 3-(4-Heptyl)phenyl-3-hydroxypropyldimethylammonio]propanesulfonate; 3-(4-Heptyl)phenyl-3-hydroxypropyldimethylammoniosulfobetaine)
HS 34021900



Zwitterionic detergent. Useful for solubilizing and stabilizing integral membrane proteins by disrupting aggregates. Especially well-suited to protein extraction for proteomic applications.

Assay (HPLC) min. 96.0 %

References:

- Luche, S., et al., (2003), Proteomics **3**, 249
- Tastet, C., et al., (2003), Proteomics **3**, 111
- Rabilloud, T., et al., (1999) Electrophoresis **20**, 3603

Cat.No.	Size	EUR
20759.01	1 g	95,00
20759.02	5 g	330,00

Benzyltrimethyl-n-hexadecyl ammonium chloride

analytical grade

(16-BAC; Benzylhexadecyldimethylammonium chloride; Cetalkonium chloride; Cetyltrimethylbenzylammonium chloride)
CAS [122-18-9]



DANGER

H302-H312-H314-H400 ♦ GGVSE/

ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦

HS 34021900

Cationic surfactant used in acidic PAGE, especially 2D electrophoresis (1), improving resolution of proteins with similar molecular weight. It has been used to separate yeast mitochondrial membrane proteins (2).

Assay min. 99.0 %

References:

- Nothwang, H. G. & Schindler (2009) J. Methods Mol. Biol. **528**, 269-77
- Braun, R. J., et al. (2009) Methods Mol. Biol. **528**, 83-107

Cat.No.	Size	EUR
14836.01	25 g	34,00
14836.02	100 g	110,00

Brij 35™ pract.

(Polyoxyethylene monolauryl ether)

M_r ca. 1200 ♦ CAS [9002-92-0]

EINECS 500-002-6 ♦ WGK 2L ♦ HS 34021300

n ca. 23. HLB 16.9. Suitable for the isolation of functional membrane complexes (1). Also applied in chemiluminescence analysis (2, 3).

Brij™ = trademark of the CRODA International Plc.

References:

- Yoshikawa, S. et al. (1988) Proc. Natl. Acad. Sci. USA **85**, 1354-8
- Javier, B.F. et al. (1988) J. Biol. Chem. **263**, 121-8
- Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
15230.01	100 g	15,00
15230.02	1 kg	64,00

Brij 58™ pract.

(Polyoxyethylene monocetyl ether)

M_r ca. 1050 ♦ CAS [9004-95-9]

EINECS 500-014-1 ♦ WGK 2L ♦ HS 34021300

n ca. 20. HLB 15.8. For lysis of bacterial cells.

Brij™ = trademark of the CRODA International Plc.

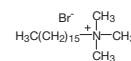
References:

- Godson, G.N. & Sinsheimer, R.L. (1967) Biochem. Biophys. Acta **149**, 489-95

Cat.No.	Size	EUR
15232.01	100 g	14,50
15232.02	1 kg	55,00

Cetyltrimethylammonium-bromide cryst. pure

(CTAB; Cetriride C16; Cetrirmonium bromide; Hexadecyltrimethyl ammonium-bromide; Palmityltrimethylammonium-bromide)



C₁₉H₄₂N⁺Br ♦ M_r 364.46 ♦ CAS [57-09-0]



WARNING

H302-H315-H319-H400-H410 ♦ GGVSE/ADR 9 III UN3077

♦ IATA 9 III UN3077 ♦ EINECS 200-311-3 ♦ WGK 3L ♦ HS 29239000

Cationic surfactant used instead of SDS in electrophoresis of highly charged and membrane protein subunits (1). Surfactant for modifying silica for HPLC (2). Suitable for cell permeabilization (3) and DNA isolation (4). Increases the efficiency of chemiluminescence (5, 6).

Assay (titr.) min. 99.0 %

References:

- Eley, M. et al. (1979) Anal. Biochem. **92**, 411-9
- Hansen, S.H. et al. (1981) J. Chromatogr. **210**, 453-60
- Joshi, M.S. et al. (1989) Biotechnol. Lett. **11**, 349-52
- Milligan, B.G. (1989) Plant Mol. Biol. Rep. **7**, 144-9
- Abdel-Latif, M.S. & Guibault, G.G. (1989) Anal. Chim. Acta **221**, 11-7
- Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
16530.04	100 g	18,00
16530.02	500 g	56,00

3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate research grade

(CHAPS)

C₃₂H₅₈N₂O₇S ♦ M_r 614.9 ♦ CAS [75621-03-3]

WARNING

H315-H319-H335 ♦ WGK 1 ♦ HS 29239000

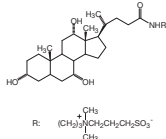
Zwitterionic surfactant. Particularly useful for solubilizing and electrophoresis of membrane proteins (1 - 5). Suitable also for enzyme immunoassay (6).

Assay (from N)

min. 97.0 %

References:

- Hjelmeland, L.M. (1980) Proc. Natl. Acad. Sci. USA **77**, 6368-70
- Naldini, L. et al. (1990) Biochemistry **29**, 5153-60
- Kierdaszuk, B. & Eriksson, S. (1990) Biochemistry **29**, 4109-114
- Bonfils, C. & Combalbert, J. (1990) Electrophoresis **11**, 182-6
- Ambar, J. et al. (1989) Eur. J. Pharmacol. **170**, 119-20
- Leblond, F.A. et al. (1989) J. Immunol. Methods **124**, 71-5



Cat.No.	Size	EUR
17038.01	1 g	19,00
17038.02	5 g	42,00
17038.03	25 g	160,00
17038.04	100 g	575,00

Cholic acid-Na-salt analytical grade

(Sodium cholate)

C₂₄H₃₉O₅·Na ♦ M_r 430.5 ♦ CAS [361-09-1]

EINECS 206-643-5 ♦ WGK 1 ♦ HS 29181930

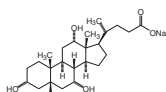
Important surfactant in membrane chemistry. Excellent solubilizer for receptors, pigments and phospholipids.

Assay (titr.)

98.0 - 101.0 %

References:

- Helenius, A. et al. (1979) Methods Enzymol **56**, 734-49
- Lopez-Corcuera, B. & Aragon, C. (1989) Eur. J. Biochem. **181**, 519-24
- Kavanaugh, M.P. et al. (1989) J. Neurochem. **53**, 1575-80
- Malloy, R.C. & Binford, J.S. Jr. (1990) J. Phys. Chem. **94**, 337-45



Dodecyl-β-D-maltoside research grade

(Lauryl-β-D-maltoside)

C₂₄H₄₆O₁₁ ♦ M_r 510.63 ♦ CAS [69227-93-6]

WGK 1 ♦ HS 34021300

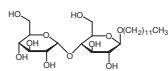
Storage temperature +2 °C to +8 °C

Non-ionic detergent; CMC 0.16-0.19 mM. Especially suitable for the activation of cytochrome C oxidase. Frequently used for the investigation of photosynthetic membranes.

Assay (from C) min. 99.0 %
[α]_D²⁰ °C/D (c=1 in H₂O). +46 ° to +50 °

References:

1. Rosevaer, P. et al. (1980) *Biochemistry* **19**, 4108-15
2. Musatov, A. et al. (1990) *Biochem. Int.* **21**, 563-71
3. Dekker, J.P. et al. (1989) *FEBS Lett.* **254**, 150-4
4. Koenig, B. et al. (1989) *FEBS Lett.* **257**, 163-6



Cat.No.	Size	EUR
20780.01	100 mg	25,00
20780.02	500 mg	40,00
20780.03	1 g	65,00

Dodecylsulfate-Na-salt 2x cryst., premium grade

(SDS; Sodium laurylsulfate)

C₁₂H₂₅O₄S-Na ♦ M_r 288.38 ♦ CAS [151-21-3]



DANGER

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.0 %
A 1 cm/10 % in water
260 nm max. 0.15
280 nm max. 0.05

Cat.No.	Size	EUR
20770.01	100 g	30,00
20770.02	500 g	120,00

Lubrol 17A17

(Lubrol W1; Lubrol WX)



WARNING

H302-H319 ♦ WGK 1 ♦ HS 34021300

Ethylene oxide condensate of fatty alcohols; cetyl-stearyl ether.

Nonionic surfactant, emulsifier.

MP 34 - 38 °C
Hydroxyl number 53.0 - 60.0
pH 1 % in water 7.0 - 9.0

Cat.No.	Size	EUR
28070.01	100 g	36,00
28070.02	500 g	98,00

NDSB-201 research grade

(Non-Detergent Sulfobetaine 201; PPS; 3-(1-Pyridino)-1-propane sulfonate; 1-(3-Sulfopropyl)pyridinium betain)

C₈H₁₁NO₃S ♦ CAS [15471-17-7]

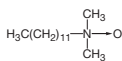
HS 29333999

A non-detergent sulfobetaine with zwitterionic properties. Easily removed by dialysis. Similar to zwitterionic detergent, but does not form micelles due to too short hydrophobic side chains. It prevents protein aggregation and facilitates the renaturation of chemically and thermally denatured proteins. Suitable for solubilization of proteins for proteomic applications.

Assay (titr.) min. 98.0 %

References:

1. Goldberg, M., E., et al., (1996), *Folding & Design* **1**, 21
2. Vuillard, L., et al., (1995), *Biochem. J.* **305**, 337



Cat.No.	Size	EUR
20762.01	50 g	18,00
20762.02	250 g	60,00

Octyl-β-D-glucopyranoside research grade

(OGD; n-Octyl glucoside)

C₁₄H₂₈O₆ ♦ M_r 292.4 ♦ CAS [29836-26-8]

EINECS 249-887-8 ♦ HS 29389090

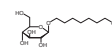
Storage temperature +2 °C to +8 °C

Non-ionic detergent. Especially suitable for the isolation and stabilization of membrane-bound enzymes, whereby in comparison to detergents used to date (Triton X-100® among others) a markedly higher yield is obtained. Easily removed by dialysis.

Assay (HPLC) min. 98.0 %
[α]_D²⁰ °C/D (c= 1 in methanol). -28.0 ° to -32.0 °

References:

1. Baron, C. & Thompson, T.E. (1975) *Biochim. Biophys. Acta* **382**, 276-85
2. Stubbs, G.W. & Litman, B.J. (1978) *Biochemistry* **17**, 215-9
3. Maloney, P.C. & Ambudkar, S.V. (1989) *Arch. Biochem. Biophys.* **269**, 1-10
4. Krah, D.L. (1989) *Virology* **172**, 386-90
5. Walker, N. et al. (1990) *J. Cryst. Growth* **100**, 168-70



Cat.No.	Size	EUR
31055.01	5 g	170,00
31055.02	250 mg	25,00
31055.03	1 g	43,00

n-Octylpolyoxyethylene research grade

(Octyl-POE)

CH₃(CH₂)₇(OCH₂CH₂)_nOH (n = 2 - 9)

HS 29389090

Storage temperature +2 °C to +8 °C

CMC: 6.6 mM. Non-ionic N-alkyloligoxyethylene surfactant. Mixture with n = 2 - 9 ethyleneglycol units. Especially suitable for the solubilization and structural characterization of integral membrane proteins.

References:

1. Rosenbusch, J.P. et al. (1981) in: *Protides of the Biological Fluids. Proceedings of the 29th Colloquium* (Peeters, H., ed.) p. 171-4
2. Zulauf, M. (1985) in: *Physics of Amphiphiles, Micelles, Vesicles, and Microemulsions* (Degiorgio, V. & Corti, M., eds.) p. 663-73
3. Garavito, M. & Rosenbusch, J.P. (1986) in *Methods Enzymol.* **125**, 309-28

Cat.No.	Size	EUR
31060.01	1 g	30,00
31060.02	10 g	215,00

Polysorbate 80 VG for biochemistry

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate)

M_r 1310 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ HS 34021300

Suitable for cell culture, enzymology, membrane research and other biochemical applications. The fatty acids of this product are purely of vegetable origin.

d25 °C 1.06 - 1.09
HLB 15.0
CMC 1x10⁻⁵ Mol/L
Hydroxyl number 65 - 80 mg KOH/g
Saponification number 45 - 55 mg KOH/g

Cat.No.	Size	EUR
33100.01	500 g	19,00
33100.02	5 kg	105,00

Polysorbate 80 VG

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate, n ca. 20)

M_r ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. The fatty acids of this detergent are of vegetable origin.

HLB	15.0
CMC	1 x 10 ⁻⁵ mol/l
d25 °C	1.06 - 1.09
Acid number	max. 2.0 mg/KOH/g
Hydroxyl number	65 - 80 mg/KOH/g
Saponification number	45 - 55 mg/KOH/g
Peroxide value	max. 5 meq/kg
Heavy metals (Pb)	max. 10 ppm

Montanox = registered trademark of Seppic, France.

References:

1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
33116.01	500 g	23,00
33116.02	5 kg	135,00

SERVA 2D PAGE Detergent Sampler

HS 38220000

Protein extraction is a crucial step of proteomic analysis. The optimal solubilization of proteins is an essential condition for receiving the best resolution in 2D gel electrophoresis.

The SERVA 2D PAGE Sampler contains six innovative zwitterionic detergents for optimizing protein solubilization. Zwitterionic detergents offer solubilization properties of membrane proteins superior to other detergent types and do not interfere with subsequent MS analysis.

The variety of detergents allows optimizing of the extraction formulas, which vary with cell type and protein of interest.

Each detergent is supplied as 1 g pack size:

CHAPS (cat. no. 17038)
SB 12 (cat. no. 20761)
SB 3-10 (cat. no. 20756)
ASB-14 (cat. no. 20757)
ASB-16 (cat. no. 20758)
ASB-C7BzO (cat. 20759)

Cat.No.	Size	EUR
20784.01	1 kit	170,00

SERVA BN PAGE Detergent Sampler



DANGER

H301-H311-H318-H331 ♦ HS 38220000

Blue-Native PAGE (BN PAGE), originally described by Schägger and von Jagow, in combination with 2D PAGE or liquid chromatography of proteins is a powerful technique for functional proteomics. It allows the study of protein-protein interactions, and the separation and analysis of very hydrophobic proteins, such as membrane proteins, their complexes, and even super-complexes.

As a first step hydrophobic proteins and complexes have to be solubilized with a mild nonionic detergent, like Triton X-100®, digitonin or dodecyl-beta-D-maltoside. Digitonin is the mildest and therefore allows the separation of intact super-complexes.

The SERVA BN PAGE Sampler contains three non-ionic detergents for optimizing solubilization of protein complexes for Blue native PAGE:

500 mg Triton X-100® (cat. no. 37240)
250 mg Dodecyl-beta-D-maltoside (cat. no. 20780)
250 mg Digitonin (cat. no. 19550)

References:

1. Schägger, H. and Jagow, G., (1991), Anal Biochem. **199**, 223-231
2. Krause, F., (2006), Electrophoresis **27**, 2759-2781

Cat.No.	Size	EUR
20785.01	1 kit	65,00

Sulfobetaine SB 3-10 research grade

(Caprylyl sulfobetaine; N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate; 3-(Decyldimethylammonio)propanesulfonate inner salt) HS 34021900

Zwitterionic detergent for solubilization of membrane proteins in their native state.

Micellar average weight	12 600
Aggregation number	41
CMC	25 - 40 mM (20 - 25 °C)
Assay (HPLC)	min. 98.0 %

References:

1. Hochstein, L.I., et al., (1987) Biochem. Biophys. Res. Commun. **147**, 295-300
2. Schulz, W., et al., (1989) J. Steroid Biochem. **32**, 581-590

Cat.No.	Size	EUR
20756.01	5 g	80,00
20756.02	25 g	276,00

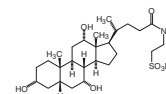
Taurocholic acid-Na-salt pure

(Sodium taurocholate)

C₂₆H₄₄NO₇Na . aq ♦ M_r 537.7 (anhydrous) ♦ CAS [145-42-6]

EINECS 205-653-7 ♦ WGK 1 ♦ HS 29181930
Storage temperature +2 °C to +8 °C

Purity (TLC)	min. 98.0 %
Cholic acid-Na salt	max. 1.0 %



Cat.No.	Size	EUR
35779.02	5 g	105,00

Triton® X-100

(Octylphenol-polyethylene glycol ether, n ca. 10)
CAS [9036-19-5]



DANGER

H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

HLB 13.5. For the turbidimetric determination of phosphate (1). Can be used in place of Nonidet NP-40. One of the most frequently used surfactants for the isolation, purification and analysis of membrane components. Suitable for solubilisation of hydrophobic proteins prior to Blue Native PAGE.

Water (KF)	max. 1.0 %
A 1 cm /320 nm 1 % in water	max. 0.4
A 1 cm /360 nm 1 % in water	max. 0.04

® Registered trademark of Union Carbide.

References:

1. Eibl, H. & Lands, W.E.M. (1969) Anal. Biochem. **30**, 51-7
2. See, Y.P. & Fitt, P.S. (1972) Anal. Biochem. **49**, 430-35
3. Campoy, F.J. et al. (1989) Biochem. Soc. Trans. **17**, 676-7
4. Gonzales-Manas, J.M. et al. (1990) Eur. J. Biochem. **188**, 673-8
5. Bayens, W.R.G. et al. (1990) Anal. Chim. Acta **234**, 187-92
6. Krause, F. (2006) Electrophoresis **27**, 2759-81

Cat.No.	Size	EUR
37240.01	500 g	16,00
37240.02	5 kg	79,00

Tween® 20 pure

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)
M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP. HLB 16.7. Non-ionic surfactant that effectively suppresses unspecific reactions between antibodies, antigens and other molecules (1, 2). Also used as a solubilizer in membrane chemistry (3) and for density centrifugation of viruses (4).

Free dioxan	max. 10 ppm
Free ethylene oxide	max. 1 ppm
Heavy metals (Ph. Eur.)	max. 10 ppm
Non animal origin	

® Registered trademark of ICI, Ltd.

References:

1. Thean, E.T. & Toh, B.H. (1989) Anal. Biochem. **177**, 256-8
2. Tovey, E.R. et al. (1989) Electrophoresis **10**, 243-9
3. Lund, S. et al. (1989) J. Biol. Chem. **264**, 4907-15
4. Boeye, A. & DeRees, A. (1989) Arch. Virol. **107**, 77-84

Cat.No.	Size	EUR
37470.01	500 g	20,00
37470.02	5 kg	120,00

■ **Tween® 80** pure

(Polysorbate 80; Polyoxyethylene sorbitan monooleate, n ca. 20)
M_r ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. HLB 15.0; tested for use in tissue culture.

Density (25 °C)	1.06 - 1.09
Ethylene oxide value	max. 1 ppm
1,4-dioxane content	max. 10 ppm
Heavy metals	max. 10 ppm
Non animal origin	

®Registered trademark of ICI, Ltd.

References:

1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
37475.01	500 g	22,00
37475.02	5 kg	126,00

Reagents

We offer a broad range of high quality, application proved reagents for cell lysis, protein isolation, purification and concentration, guaranteeing you best results.

■ **Acetic acid 100 %** analytical grade

C₂H₄O₂ ♦ M_r 60.05 ♦ CAS [64-19-7]

**DANGER**

H226-H314 ♦ GGVSE/ADR 8 II UN2789 ♦ IATA 8 II UN2789
♦ EINECS 200-580-7 ♦ WGK 1 L ♦ HS 29152100

Assay (GC)	min. 99.8 %
Density (20 °C)	1.05

Cat.No.	Size	EUR
45633.01	1 L	19,00
45633.02	2,5 L	40,00

■ **Aceton** research grade

C₃H₆O ♦ M_r 58.08 ♦ CAS [67-64-1]

**DANGER**

H225-H319-H336 ♦ EG-Index 606-001-00-8 ♦ GGVSE/ADR 3 II UN1090 ♦ IATA 3 II UN1090 ♦ EINECS 200-662-2 ♦ WGK 1 L ♦ HS 29141100

Assay (GC)	min. 99.5 %
Density (20 °C)	0.790 - 0.792
Water	max. 0.2 %
Heavy metals	max. 2 ppm

Cat.No.	Size	EUR
45632.01	1 L	16,00
45632.02	2,5 L	29,00

■ **Ammonium chloride** molecular biology grade

NH₄Cl ♦ M_r 53.5 ♦ CAS [12125-02-9]

**WARNING**

H302-H319 ♦ EG-Index 017-014-00-8 ♦ EINECS 235-186-4 ♦ WGK 1L ♦ HS 28271000

DNase/RNase not detected.

Assay (titr.)	min. 99.5 %
Heavy metals (Pb)	max. 0.0005 %
Iron (Fe)	max. 0.0002 %
Sulfate (SO ₄)	max. 0.002 %
Phosphate (PO ₄)	max. 0.0002 %

Cat.No.	Size	EUR
39752.01	500 g	39,00

■ **Ammonium sulfate** analytical grade

(NH₄)₂SO₄ ♦ M_r 132.2 ♦ CAS [7783-20-2]

EINECS 231-984-1 ♦ WGK 1L ♦ HS 28332980

Suitable for enzymology.

Assay (titr.) min. 99.0 %

References:

1. Wood, W.I. (1976) Anal. Biochem. **73**, 250-7

Cat.No.	Size	EUR
13378.01	1 kg	29,00

■ **Chloroform** analytical grade

CHCl₃ ♦ M_r 119.4 ♦ CAS [67-66-3]

**DANGER**

H302-H315-H351-H373 ♦ EG-Index 602-006-00-4 ♦ GGVSE/ADR 6.1 III UN1888 ♦ IATA 6.1 III UN1888 ♦

EINECS 200-663-8 ♦ WGK 3 L ♦ HS 29031300

Assay (GC)	min. 99.0 %
Density (20 °C)	1.474 - 1.478
Water	max. 0.05 %
Acidity	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

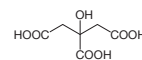
Cat.No.	Size	EUR
45627.01	250 ml	14,00
45627.02	2,5 L	58,00

■ **Citric acid-H₂O** analytical grade

C₆H₈O₇·H₂O ♦ M_r 210.1 ♦ CAS [5949-29-1]

**WARNING**

H319 ♦ EINECS 201-069-1 ♦ WGK 1 ♦ HS 29181400



For buffers.

Assay (hydrate) 99.5 - 101.0 %

Cat.No.	Size	EUR
38640.01	500 g	14,00
38640.02	1 kg	19,00
38640.03	5 kg	65,00

■ **Citric acid-Na₃-salt-2H₂O** analytical grade

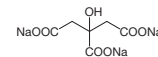
(tri-Sodium citrate)

C₆H₅O₇·Na₃·2H₂O ♦ M_r 294.1 ♦ CAS [6132-04-3]

EINECS 200-675-3 ♦ WGK 1L ♦ HS 29181500

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %



Cat.No.	Size	EUR
38642.02	1 kg	28,00
38642.03	5 kg	110,00

■ **Dextran FP 40** research grade

CAS [9004-54-0]

EINECS 232-677-5 ♦ WGK 2L ♦ HS 39139000

Ph. Eur.

Molecular weight	35 000 - 45 000
Loss on drying	max. 7.0 %
Sulfated ash	max. 0.3 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
18665.01	100 g	35,00
18665.02	500 g	115,00

Dithioerythritol

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]



WARNING

H302-H315-H319-H332-H335 ♦ EINECS 229-998-8
 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Quantitatively reduces disulfide groups, forming a cyclic disulfide (1, 2, 3).
 Not hygroscopic.

Assay (titr.) min. 99.0 %
 MP 82 - 86 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) J. Biol. Chem. **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) Biochemistry **11**, 2939-44

Cat.No.	Size	EUR
20697.02	1 g	16,50
20697.03	5 g	48,00
20697.04	25 g	195,00

Dithiothreitol

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)
 $C_4H_{10}O_2S_2$ ♦ M_r 154.25



WARNING

H302-H315-H319-H332-H335 ♦ WGK 3L ♦
 HS 29309099

Storage temperature +2 °C to +8 °C

For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %.
 Hygroscopic.

Assay (titr.) min. 99.0 %
 MP 40 - 45 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2

Cat.No.	Size	EUR
20710.02	1 g	15,00
20710.03	5 g	45,00
20710.04	25 g	145,00

Ethanol denaturated 96 %

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
 EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC) min. 96.0 %
 Methyl ethyl ketone 1 %
 Aldehyde max. 30 ppm
 Acidity max. 10 ppm
 Methanol max. 1000 ppm
 Residue on evaporation max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

Ethanol undenaturated 96 % analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

Assay (GC) 94.0 - 96.0 %
 Water (KF) 4.0 - 6.0 %

Cat.No.	Size	EUR
11094.01	1 L	61,00
11094.02	2,5 L	135,00

Ethanol undenaturated absolute analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER

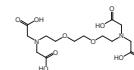
H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
 ♦ WGK 1L ♦ HS 22071000

Assay (GC) min. 99.7 %
 Water (KF) max. 0.2 %

Cat.No.	Size	EUR
11093.01	250 ml	20,00
11093.02	1 L	61,00
11093.03	2,5 L	135,00

Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetra acetic acid analytical grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)
 $C_{14}H_{24}N_2O_{10}$ ♦ M_r 380.35 ♦ CAS [67-42-5]



EINECS 200-651-2 ♦ HS 29225000

High selectivity for Ca^{2+} over Mg^{2+} .

Assay (titr.) min. 99.0 %

References:

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7

Cat.No.	Size	EUR
11290.01	5 g	21,00
11290.02	50 g	115,00

Ethylenediamine tetraacetic acid analytical grade

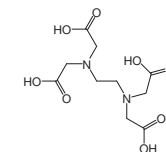
(EDTA; Ethylenedinitrilo-tetraacetic acid)
 $C_{10}H_{16}N_2O_8$ ♦ M_r 292.3 ♦ CAS [60-00-4]



WARNING

H319 ♦ EG-Index 607-429-00-8 ♦
 EINECS 200-449-4 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %



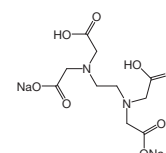
Cat.No.	Size	EUR
11278.01	100 g	11,50
11278.02	1 kg	40,50

Ethylenediamine tetraacetic acid- Na_2 -salt analytical grade

(Versene disodium; EDTA-disodium)
 $C_{10}H_{14}N_2O_8Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %



Cat.No.	Size	EUR
11280.01	100 g	12,50
11280.02	1 kg	42,00
11280.03	5 kg	165,00

Ethylenediamine tetraacetic acid- K_3 -salt analytical grade

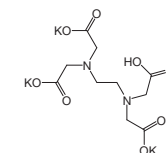
(EDTA- K_3 -salt; Versene- K_3 -salt)
 $C_{10}H_{13}N_2O_8K_3 \cdot 2H_2O$ ♦ M_r 442.55 ♦ CAS [65501-24-8]



WARNING

H319-H412 ♦ EINECS 241-543-5 ♦ WGK 2L ♦
 HS 29212900

Assay (titr.) min 99.0 %



Cat.No.	Size	EUR
11277.02	100 g	32,50

Products for Life Sciences:

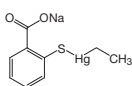
see special chapter at p. 275

Ethylmercury thiosalicylic acid-Na-salt research grade

(Merthiolate; Thimerosal; Thiomersal)
 $C_9H_9HgO_2S_2Na$ ♦ M_r 404.8 ♦ CAS [54-64-8]



DANGER
 H301-H310-H330-H373-H410
 ♦ MAK/TRK 0.01 ml/m³, 0.1 mg/m³ calculated



as mercury ♦ EG-Index 080-004-00-7 ♦ GGVSE/ADR 6.1 III UN2025 ♦
 IATA 6.1 III UN2025 ♦ EINECS 200-210-4 ♦ WGK 3L ♦ HS 28521000

USP, Ph. Eur.

Assay (titr.) 97.0 - 101.0 %

Cat.No.	Size	EUR
11340.01	10 g	42,00
11340.02	25 g	88,00
11340.03	100 g	252,00

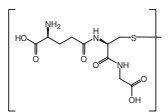
L-Glutathione (oxidized form) cryst. research grade

(GSSG)
 $C_{20}H_{32}N_6O_{12}S_2$ ♦ M_r 612.64 ♦ CAS [27025-41-8]

EINECS 248-170-7 ♦ WGK 1 ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 98.0 %
 [α] 20 °C/D (c=4 in water) -106.0 ° to -96.0 °



References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60

Cat.No.	Size	EUR
23130.01	1 g	22,50
23130.02	5 g	79,00
23130.03	25 g	365,00

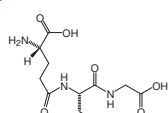
L-Glutathione (reduced form) cryst. research grade

(GSH; γ-L-Glutamyl-L-cysteinylglycine)
 $C_{10}H_{17}N_3O_6S$ ♦ M_r 307.3 ♦ CAS [70-18-8]

EINECS 200-725-4 ♦ WGK 2L ♦ HS 29309016

Storage temperature +2 °C to +8 °C

Assay (CE) min. 97.5 %
 MP 182 - 192 °C
 [α] 20 °D (c=4 in water) -15.5 ° to -17.5 °



References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60

Cat.No.	Size	EUR
23150.02	5 g	20,00
23150.03	25 g	77,00
23150.04	100 g	260,00

Glycerol from plant

(Glycerin)
 $C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Ph. Eur.

Assay (titr.) min. 99.5 %
 Heavy metals (Pb) max. 5 ppm
 Refractive index 1.470 - 1.475



Cat.No.	Size	EUR
23176.01	1 L	33,50

Glycine analytical grade

(Aminoacetic acid; Glycocoli)
 $C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
23390.02	500 g	15,00
23390.04	1 kg	23,00
23390.03	5 kg	89,00

Guanidine-HCl analytical grade

(Aminomethanamidine)
 CH_5N_3HCl ♦ M_r 95.5 ♦ CAS [50-01-1]



WARNING
 H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
 WGK 1L ♦ HS 29252900

Assay min. 99.5 %
 pH (6 M water 20 °C) 4.5 - 6.0
 A 1 cm/10 % in water
 260 nm max. 0.03
 280 nm max. 0.015
 Heavy metals (Pb) max. 10 ppm
 Arsenic max. 3 ppm
 Ammonium max. 0.05 %

References:

1. Strohmair et al. (1977) Cell **10**, 265
 2. MacDonald et al. (1987) Methods Enzymol. **152**, 219

Cat.No.	Size	EUR
24200.03	250 g	35,00
24200.04	1 kg	105,00

Guanidine-HCl research grade

(Aminomethanamidine)
 CH_5N_3HCl ♦ M_r 95.5 ♦ CAS [50-01-1]



WARNING
 H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
 WGK 1L ♦ HS 29252900

Assay (titr.) min. 99.0 %
 pH (6 M in water 20 °C) 4.5 - 6.0
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
24205.01	250 g	26,00
24205.02	1 kg	67,00

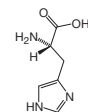
L-Histidine base research grade

(His; L-2-Amino-3-(4-imidazolyl)-propionic acid)
 $C_6H_9N_3O_2$ ♦ M_r 155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
24820.02	100 g	33,00
24820.03	1 kg	265,00

N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade

(HEPES)
 $C_8H_{18}N_2O_4S$ ♦ M_r 238.3 ♦ CAS [7365-45-9]

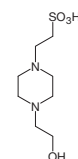
EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.08
 Heavy metals (Pb) max. 10 ppm
 pH 10 % in water 5.0 - 6.5

References:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77
 2. Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
 3. Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6



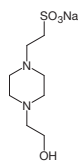
Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid · Na-salt research grade

(HEPES·Na-salt)

 $C_8H_{17}N_2O_4S \cdot Na$ M_r 260.3 $\blacklozenge$ CAS [75277-39-3]EINECS 278-169-7 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29335995 pK_a 20 = 7.55

Assay (titr.) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.15
 280 nm max. 0.1
 pH 10 % in water 9.5 - 11.5



Cat.No.	Size	EUR
25249.03	100 g	50,00
25249.05	250 g	120,00
25249.04	1 kg	380,00

Imidazole research grade

 $C_3H_4N_2$ M_r 68.08 $\blacklozenge$ CAS [288-32-4]

DANGER
 H301-H314-H361d $\blacklozenge$ GGVSE/
 ADR 8 III UN2923 $\blacklozenge$ IATA 8 III UN2923 $\blacklozenge$
 EINECS 206-019-2 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 29332990

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
26081.01	100 g	25,00
26081.02	500 g	79,00

Isopropanol analytical grade

 C_3H_8O M_r 60.1 $\blacklozenge$ CAS [67-63-0]

DANGER
 H225-H319-H336 $\blacklozenge$ EG-Index 603-117-00-0 $\blacklozenge$ GGVSE/
 ADR 3 II UN1219 $\blacklozenge$ IATA 3 II UN1219 $\blacklozenge$ EINECS 200-661-7 $\blacklozenge$
 WGK 1 L $\blacklozenge$ HS 29051200

Assay (GC) min. 99.7 %
 Density (20 °C) 0.785
 Water max. 1000 ppm
 Acidity max. 0.001 %
 Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45629.01	1 L	19,00
45629.02	2,5 L	38,00

Magnesium chloride-6H₂O cryst. research grade

 $MgCl_2 \cdot 6H_2O$ M_r 203.3 $\blacklozenge$ CAS [7791-18-6]EINECS 232-094-6 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 28273100

Ph.Eur.

Assay (titr.; hydrate) 98.0 - 101.0 %
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
28305.01	100 g	12,00

Manganese (II) chloride-4H₂O analytical grade

 $MnCl_2 \cdot 4H_2O$ M_r 197.91 $\blacklozenge$ CAS [13446-34-9]

WARNING
 H302-H412 $\blacklozenge$ EINECS 231-869-6 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 28273985

Assay min. 99.0 %

Cat.No.	Size	EUR
28403.01	100 g	25,00

2-Mercaptoethanol

(Monothioethylene glycol)

 C_2H_5OS M_r 78.13 $\blacklozenge$ CAS [60-24-2]

DANGER
 H301-H310-H315-H317-H318-H331-H373-H410 $\blacklozenge$ GGVSE/ADR 6.1 II UN2966
 $\blacklozenge$ IATA 6.1 II UN2966 $\blacklozenge$ EINECS 200-464-6 $\blacklozenge$ WGK 3L $\blacklozenge$ HS 29309099

Storage temperature +2 °C to +8 °C

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
28625.01	50 ml	12,00
28625.02	500 ml	45,00

Methanol analytical grade

 CH_3O M_r 32.04 $\blacklozenge$ CAS [67-56-1]

DANGER
 H225-H301-H311-H331-H370 $\blacklozenge$ EG-
 Index 603-001-00-X $\blacklozenge$ GGVSE/ADR 3 II UN1230 $\blacklozenge$
 IATA 3 II UN1230 $\blacklozenge$ EINECS 200-659-6 $\blacklozenge$ WGK 1 L $\blacklozenge$ HS 29051100

Assay (GC) min. 99.8 %
 Density (20 °C) 0.7915
 Water max. 1000 ppm
 Acidity max. 10 ppm
 Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

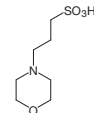
Morpholinopropane sulfonic acid analytical grade

(MOPS)

 $C_7H_{15}NO_3S$ M_r 209.27 $\blacklozenge$ CAS [1132-61-2]EINECS 214-478-5 $\blacklozenge$ WGK 1L $\blacklozenge$ HS 29349990 pK_a 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.08
 pH 10 % in water 3.0 - 5.0

References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00

Polyethylene glycol 4000

(PEG 4000; Macrogol 4000; Macrogol)

CAS [25322-68-3]

EINECS 500-038-2(NLP) $\blacklozenge$ WGK 1L $\blacklozenge$ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 70 - 80.
 Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_n 3600 - 4400
 Hydroxyl value 26.0 - 31.0
 Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33136.01	500 g	20,00
33136.02	5 kg	145,00

Polyethylene glycol 6000

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) $\blacklozenge$ WGK 1L $\blacklozenge$ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 140 - 170.
 Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_n 5400 - 6600
 Hydroxyl value 17.0 - 21.0
 Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33137.01	500 g	19,00
33137.02	5 kg	85,00

■ Polyethylene glycol 20 000

(PEG 20000; Macrogol 20000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 400 - 500.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M_n 16 000 - 25 000
Hydroxyl value 4.5 - 7.0
Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33138.01	500 g	19,00
33138.02	5 kg	86,00

■ Polyethylene glycol 40 000

(PEG 35000; Macrogol 35000)
CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 800 - 900.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Heavy metals (Pb) max. 5 ppm

Cat.No.	Size	EUR
33139.01	500 g	19,00
33139.02	5 kg	86,00

■ Sodium acetate analytical grade

(Acetic acid-Na-salt)
 $C_2H_3O_2 \cdot Na$ ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1L ♦ HS 29152900

pKa 25 = 4.76

Assay (titr.) min. 98.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
21249.02	500 g	22,00

■ Sodium azide research grade

NaN_3 ♦ M_r 65.01 ♦ CAS [26628-22-8]



DANGER
H300-H400-H410 ♦ MAK/TRK 0.2 mg/m³ ♦ EG-Index 011-004-00-7 ♦ GGVSE/ADR 6.1 II UN1687 ♦

IATA 6.1 II UN1687 ♦ EINECS 247-852-1 ♦ WGK 2L ♦ HS 28500060

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
30175.01	100 g	21,00
30175.02	1 kg	115,00
30175.03	250 g	36,00

■ Sodium chloride cryst. research grade

$NaCl$ ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size	EUR
30183.01	1 kg	14,00

■ Sodium dihydrogen phosphate-2H₂O research grade

(Sodium phosphate monobasic (prim. sodium phosphate))
 $NaH_2PO_4 \cdot 2H_2O$ ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size	EUR
30186.02	1 kg	32,00

■ di-Sodium hydrogen phosphate-2H₂O analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))
 $Na_2HPO_4 \cdot 2H_2O$ ♦ M_r 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sörensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.) 98.0 - 100.5 %
pH 5 % solution 9.0 - 9.2
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
30200.01	500 g	24,00

■ Trichloroacetic acid analytical grade

$C_2HCl_3O_2$ ♦ M_r 163.4 ♦ CAS [76-03-9]



DANGER
H314-H410 ♦ EG-Index 607-004-00-7
♦ GGVSE/ADR 8 II UN1839 ♦ IATA 8 II UN1839 ♦
EINECS 200-927-2 ♦ WGK 2L ♦ HS 29154000



Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
36910.01	100 g	15,00
36910.03	500 g	38,00

■ Trichloroacetic acid, 20 % solution



DANGER
H314-H335-H336-H412 ♦ GGVSE/ADR 8 III UN2564 ♦
IATA 8 III UN2564 ♦ WGK 2S ♦ HS 38220000

Aqueous solution. TCA (cat. no. 36910): 200 g/L

Cat.No.	Size	EUR
36913.01	500 ml	30,00
36913.02	1 L	45,00

■ Tris-(2-carboxyethyl)phosphine hydrochloride

(TCEP)
 $C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER
H315-H318-H335 ♦ WGK 1 ♦ HS 29420000
Storage temperature +2 °C to +8 °C

Water-soluble and odorless reagent for selective and fast reduction of disulfides. Does not react with other functional groups of proteins. Unreactive towards many common alkylating reagents, so reductions have been carried out simultaneously with alkylations. More stable and effective than DTT. The strength of the phosphorus-oxygen bond makes the reaction irreversible. Dilute solutions of TCEP (1 mM) react rapidly at room temperature. Suitable also in mass spectrometry applications.

Assay (TLC) min. 99.0 %

References:

1. Kirkley, T.L. (1989) Anal. Biochem. **180**, 231-36
2. Burns, J.A. (1991) J. Org. Chem. **56**, 2648-50
3. Han, J. a. Han, G.Y. (1994) Anal. Biochem. **220**, 5-10

Cat.No.	Size	EUR
36970.01	1 g	50,00
36970.02	5 g	185,00
36970.03	10 g	325,00

Tris(hydroxymethyl)aminomethane analytical grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Buffer quality for biological and enzymatic research.

Assay (titr.)	min. 99.9 %
A 1 cm/10 % in water	
235 nm	max. 0.60
260 nm	max. 0.15
280 nm	max. 0.15
430 nm	max. 0.07
Heavy metals (Pb)	max. 1 ppm
pH (5 % in water)	10.0 - 11.5

Cat.No.	Size	EUR
37180.02	100 g	15,00
37180.03	500 g	35,00
37180.05	1 kg	59,00
37180.04	2,5 kg	135,00

Tris(hydroxymethyl)aminomethane research grade

(TRIS; THAM; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Suitable for preparative purposes and for chromatography.

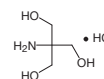
Assay (titr.)	min. 99.0 %
A 1 cm/40 % in water	
290 nm	max. 0.2
pH (5 % in water)	10.0 - 11.5
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
37190.01	250 g	17,00
37190.02	1 kg	44,00
37190.03	5 kg	187,00

Tris(hydroxymethyl)aminomethane-hydrochloride research grade

(Tris-hydrochloride)

$C_4H_{11}NO_3 \cdot HCl$ ♦ M_r 157.6 ♦ CAS [1185-53-1]



WARNING

H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

For enzymology

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	3.5 - 5.0

Cat.No.	Size	EUR
37192.01	100 g	21,00
37192.02	500 g	77,00
37192.03	2,5 kg	310,00

Urea analytical grade

(Carbamide; Carbonyl diamide)

CH_4N_2O ♦ M_r 60.06 ♦ CAS [57-13-6]



EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

Ph.Eur., USP.

Assay (from N)	99.0 - 100.5 %
Heavy metals (Pb)	< 10 ppm

Cat.No.	Size	EUR
24524.02	1 kg	18,00
24524.03	5 kg	47,00

Collagenases:

see special chapter at p. 269

Gelfiltration Columns from emp Biotech – fast and efficient protein purification

CentriPure, CentriPure MINI Spin and CentriSpin columns are ready-to-use columns for fast and efficient desalting, buffer exchange and removal of small molecular impurities from protein samples.

The gel matrix Zetadex, a new cross-linked composite dextran matrix, has been proven to be superior for desalting, buffer exchange and removal of small molecular impurities, such as salts, ammonia, dyes, biotin, haptens etc. from antibodies, enzymes and other proteins.

- Hydrated, ready-to-use gel filtration columns
- Processing of small and large sample volumes possible
- Available as flow gravity or spin columns
- Fast and easy handling
- High yield and high purity
- Minimal effect of buffer and pH on resolution
- Purified biomolecules are directly suited for downstream applications, like SDS PAGE, mass spectrometry, X-ray crystallisation

■ CentriPure MINI Spin Columns Desalt Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42130.01	4 columns	16,00

■ CentriPure MINI Spin Columns Desalt Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42131.01	25 columns	77,00

■ CentriPure MINI Spin Columns Desalt Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42132.01	100 columns	256,00

Gelfiltration Columns from emp Biotech

Type	Cat. No.	Size (columns)
CentriPure MINI Spin Columns Desalt		
Z-25	42130	4
	42131	25
	42132	100
Z-50	42113	4
	42114	25
	42115	100
CentriPure MINI Spin Columns PBS		
Z-25	42136	4
	42137	25
	42138	100
Z-50	42127	4
	42128	25
	42129	100
CentriPure MINI Spin Columns TRIS		
Z-25	42133	4
	42124	25
	42135	100
Z-50	42124	4
	42125	25
	42126	100
CentriPure Columns		
P2	42100	2
	42101	50
P5	42102	2
	42103	50
P10	42104	2
	42105	50
P25	42106	2
	42107	25
P50	42108	1
	42109	10
P100	42110	1
	42111	10
P500	42112	1
CentriSpin Columns		
10	42116	20
	42117	50
20	42118	20
	42119	50
40	42120	20
	42121	50
ProSpin Columns		
	42123	50

CentriPure MINI Spin Columns Desalt Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42113.01	4 columns	16,00

CentriPure MINI Spin Columns Desalt Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42114.01	25 columns	77,00

CentriPure MINI Spin Columns Desalt Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into pure, deionized water.

(Caution! Some proteins may precipitate in pure water with low ionic strength!)

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42115.01	100 columns	256,00

CentriPure MINI Spin Columns PBS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42136.01	4 columns	16,00

CentriPure MINII Spin Columns PBS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42137.01	25 columns	77,00

CentriPure MINI Spin Columns PBS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42138.01	100 columns	256,00

CentriPure MINI Spin Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42127.01	4 columns	16,00

CentriPure MINI Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42128.01	25 columns	77,00

CentriPure MINI Spin Columns PBS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into Phosphate Buffered Saline (PBS, pH 7).

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42129.01	100 columns	256,00

CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42133.01	4 columns	16,00

CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42134.01	25 columns	77,00

CentriPure MINI Spin Columns TRIS Z-25

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 5 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42135.01	100 columns	256,00

CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42124.01	4 columns	16,00

CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42125.01	25 columns	77,00

CentriPure MINI Spin Columns TRIS Z-50

HS 38220000

Storage temperature +2 °C to +8 °C

Quick and efficient desalting, buffer exchange, removal of dyes and small molecules from proteins greater than 25 kD with minimal dilution. Purified proteins are eluted into 1 mM TRIS, pH 6.

The gel bed has a volume of 0.8 ml. Samples with a volume of between 10 and 100 µl can be processed. Optimal purification and recovery is obtained with a sample volume of 50 µl.

Cat.No.	Size	EUR
42126.01	100 columns	256,00

CentriPure P2 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 200 µl can be purified with an elution volume of 200 to 350 µl.

Cat.No.	Size	EUR
42100.01	2 columns	12,00

CentriPure P2 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 200 µl can be purified with an elution volume of 200 to 350 µl.

Cat.No.	Size	EUR
42101.01	50 columns	188,00

CentriPure P5 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 0.5 ml can be purified with an elution volume of 1 ml.

Cat.No.	Size	EUR
42102.01	2 columns	14,00

CentriPure P5 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 0.5 ml can be purified with an elution volume of 1 ml.

Cat.No.	Size	EUR
42103.01	50 columns	240,00

CentriPure P10 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 1 ml can be purified with an elution volume of 1.2 to 1.5 ml.

Cat.No.	Size	EUR
42104.01	2 columns	15,00

CentriPure P10 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 1 ml can be purified with an elution volume of 1.2 to 1.5 ml.

Cat.No.	Size	EUR
42105.01	50 columns	256,00

CentriPure P25 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 2.5 ml can be purified with an elution volume of 2.7 to 3.5 ml.

Cat.No.	Size	EUR
42106.01	2 columns	16,00

CentriPure P25 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 2.5 ml can be purified with an elution volume of 2.7 to 3.5 ml.

Cat.No.	Size	EUR
42107.01	25 columns	172,00

CentriPure P50 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 5 ml can be purified with an elution volume of 6 to 8 ml.

Cat.No.	Size	EUR
42108.01	1 column	19,00

CentriPure P50 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 5 ml can be purified with an elution volume of 6 to 8 ml.

Cat.No.	Size	EUR
42109.01	10 columns	161,00

CentriPure P100 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 10 ml can be purified with an elution volume of 12 to 15 ml.

Cat.No.	Size	EUR
42110.01	1 column	34,00

CentriPure P100 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 10 ml can be purified with an elution volume of 12 to 15 ml.

Cat.No.	Size	EUR
42111.01	10 column	285,00

CentriPure P500 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Rapid and efficient removal of small molecules (salts, dyes, ammonia, haptens, biotin, etc.) from antibodies, enzymes and other proteins. Molecules purified with Zetadex-25 are separated according to size. Proteins larger than 10 kD in a sample volume of up to 50 ml can be purified with an elution volume of 65 to 70 ml.

Cat.No.	Size	EUR
42112.01	1 column	296,00

CentriSpin-10 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl. Excellent recovery of DNA fragments with sizes greater than 10 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 5 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42116.01	20 columns	97,00

CentriSpin-10 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl. Excellent recovery of DNA fragments with sizes greater than 10 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 5 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42117.01	50 columns	165,00

CentriSpin-20 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl. Excellent recovery of DNA fragments with sizes greater than 20 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 25 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42118.01	20 columns	91,00

CentriSpin-20 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl. Excellent recovery of DNA fragments with sizes greater than 20 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 25 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42119.01	50 columns	158,00

CentriSpin-40 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl. Excellent recovery of DNA fragments with sizes greater than 135 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 100 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42120.01	20 columns	91,00

CentriSpin-40 Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Fast and efficient separation of larger molecules (proteins, nucleic acids, complex carbohydrates, etc.), from small molecules (nucleotides, buffer salts, etc.). Processes sample volumes of 20–50 µl.

Excellent recovery of DNA fragments with sizes greater than 135 base pairs while removing > 98 % of salts, NTP's and other unwanted low-molecular-weight impurities. Proteins, peptides, and protein conjugates > 100 kD are efficiently separated and desalted from unwanted low-molecular-weight impurities.

The column gel is hydrated with either reagent-grade water or a suitable buffer, and then spun in a microcentrifuge to remove the interstitial fluid. After your sample is applied, the column is spun again to simultaneously remove impurities and exchange your sample into the buffer of your choice.

Cat.No.	Size	EUR
42121.01	50 columns	158,00

CentriSpin COMBO-PAK

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 30 CentriSpin columns for processing sample volumes of 20–50 µl:
10 CentriSpin-10 columns

10 CentriSpin-20 columns

10 CentriSpin-40 columns

The CentriSpin COMBO Pak is an easy and useful way to familiarize yourself with all three types of CentriSpin columns.

Cat.No.	Size	EUR
42122.01	30 columns	108,00

ProSpin Columns

HS 38220000

Storage temperature +2 °C to +8 °C

Removal of dyes, haptens, chromagens and salts from labeled IgG antibodies. Can be used for salt removal and buffer exchange or the general cleanup of proteins. Processes sample volumes of 50 to 100 µl.

Recoveries of greater than 90 % labeled antibody can be expected using up to 100 microliters of sample.

IgG cleanup requires only 2 two-minute centrifugation steps using a simple microcentrifuge.

Cat.No.	Size	EUR
42123.01	50 columns	135,00

Dialysis

Dialysis is a process where substances in solution are separated by their differences in molecular weight. The dialysis tubings are semipermeable, made of regenerated cellulose or cellulose ester having a gel-like structure. The driving force is the concentration difference between 2 solutions on opposite sides of the membrane. Since the porous membrane selectively allows smaller solutes to pass while retaining larger species, dialysis can effectively be used as a separation process based on size rejection.

Since the dialysis membrane consists of a spongy matrix of crosslinked polymers, the pore rating referred to as Molecular Weight Cut Off (MWCO), is an indirect measure of the retention performance. The membrane MWCO is determined as the solute size that is retained by at least 90 %. However, since a solute's permeability is also dependent upon molecular shape, degree of hydration, ionic charge and polarity, it is recommended to select a MWCO that is half the size of the MW of the species to be retained and/or twice the size of the MW of the species intended to pass through.

For many years, dialysis has been successfully used as a routine method for desalting and concentration of complex biomolecules in solution. In addition, macromolecules, differing substantially in molecular weight can be separated.

Applications

- Desalting of protein solutions, e.g. for further purification by ion exchange chromatography
- Concentration of protein solutions by embedding the filled tubing in dry PEG 20000 (cat.no. 33138) e.g. before further separation by gel permeation chromatography
- Separation of high molecular weight proteins from low molecular weight peptides and other substances
- Buffer exchange with solutions of proteins or other macromolecules
- Desalting of metallo colloids

Albumins:

see special chapter at p. 276

SERVAPOR®**SERVAPOR® Dialysis Membranes**

- Packed dry
- Made from regenerated cellulose (RC)
- With glycerol as protection for embrittlement
- Contain low level of heavy metal and sulfide impurities
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 60 °C

SERVAPOR® Dialysis tubing
(MWCO 12 000 - 14 000; pore diameter ca. 25 Å)

Cat.No.	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44139	10	6	0.3	50
44145	25	16	2.0	20
44144	34	21	3.4	25
44146	45	29	6.5	20
44148	80	50	18.5	40

SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 6 mm

(SERVAPOR® Dialysis Tubing; Dialysis Tubing; Dialysis Tubing)
HS 39173200

Pore diameter approx. 25 Å
 Nominal dry flat width 10 mm
 Nominal dry diameter 6 mm
 Approx. filling volume 0.3 ml/cm
 Nominal dry wall thickness 50 µm

Cat.No.	Size	EUR
44139.01	5 m	38,00
44139.02	25 m	142,00

SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

regenerated cellulose, RC, diameter 16 mm

HS 39173200

Pore diameter approx. 25 Å
 Nominal dry flat width 25 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 2.0 ml/cm
 Nominal dry wall thickness 20 µm

Cat.No.	Size	EUR
44145.01	5 m	16,00
44145.04	25 m	54,00

SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 21 mm

HS 39173200

Pore diameter approx. 25 Å
 Nominal dry flat width 34 mm
 Nominal dry diameter 21 mm
 Approx. filling volume 3.4 ml/cm
 Nominal dry wall thickness 25 µm

Cat.No.	Size	EUR
44144.01	5 m	17,00
44144.02	25 m	63,00

SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 29 mm

HS 39173200

Pore diameter approx. 25 Å
 Nominal dry flat width 45 mm
 Nominal dry diameter 29 mm
 Approx. filling volume 6.5 ml/cm
 Nominal dry wall thickness 20 µm

Cat.No.	Size	EUR
44146.01	5 m	20,00
44146.04	25 m	68,00

SERVAPOR® dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 50 mm

HS 39173200

Pore diameter approx. 25 Å
 Nominal dry flat width 80 mm
 Nominal dry diameter 50 mm
 Approx. filling volume 18.5 ml/cm
 Nominal dry wall thickness 40 µm

Cat.No.	Size	EUR
44148.01	5 m	42,00
44148.02	25 m	154,00

VISKING**VISKING Dialysis Membranes**

- Packed dry
- Made from regenerated cellulose (RC)
- With glycerol as protection for embrittlement
- Contain low level of heavy metal and sulfide impurities
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 60 °C

VISKING® Dialysis tubing
(MWCO 12 000 - 14 000; pore diameter ca. 25 Å)

Cat.No.	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
44104	10	6	0.3	51
44110	25	16	2.0	20
44114	34	21	3.4	23
44120	44	28	6.4	20
44126	77	49	18	41
44130	117	75	45.8	74

VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 6 mm

(VISKING Dialysis Tubing)

HS 39173200

Pore diameter ca. 25 Å
 Nominal dry flat width 10 mm
 Nominal dry diameter 6 mm
 Approx. filling volume 0.3 ml/cm
 Nominal dry wall thickness 51 µm

Cat.No.	Size	EUR
44104.01	5 m	42,00
44104.02	30 m	178,00
44104.04	152 m	585,00

■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 16 mm

HS 39173200

Pore diameter	ca. 25 Å
Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size	EUR
44110.01	5 m	19,00
44110.02	30 m	72,00
44110.04	152 m	245,00

■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 21 mm

HS 39173200

Pore diameter	ca. 25 Å
Nominal dry flat width	34 mm
Nominal dry diameter	21 mm
Approx. filling volume	3.4 ml/cm
Nominal dry wall thickness	23 µm

Cat.No.	Size	EUR
44114.01	5 m	21,00
44114.02	30 m	82,00
44114.04	152 m	275,00

■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 28 mm

HS 39173200

Pore diameter	ca. 25 Å
Nominal dry flat width	44 mm
Nominal dry diameter	28 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	20 µm

Cat.No.	Size	EUR
44120.01	5 m	24,00
44120.02	30 m	93,00
44120.05	152 m	295,00

■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 49 mm

HS 39173200

Pore diameter	ca. 25 Å
Nominal dry flat width	77 mm
Nominal dry diameter	49 mm
Approx. filling volume	18 ml/cm
Nominal dry wall thickness	41 µm

Cat.No.	Size	EUR
44126.01	5 m	50,00
44126.02	15 m	115,00
44126.03	152 m	740,00

■ VISKING dialysis tubing, MWCO 12 000 - 14 000

RC, diameter 75 mm

HS 39173200

Pore diameter	ca. 25 Å
Nominal dry flat width	117 mm
Nominal dry diameter	75 mm
Approx. filling volume	45.8 ml/cm
Nominal dry wall thickness	74 µm

Cat.No.	Size	EUR
44130.01	5 m	63,00
44130.02	15 m	155,00
44130.03	152 m	970,00

MEMBRA-CEL®

MEMBRA-CEL® Dialysis Membranes

- Packed dry
- Made from regenerated cellulose (RC)
- With glycerol as protection for embrittlement
- Contain low level of heavy metal and sulfide impurities
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 60 °C

MEMBRA-CEL™ Dialysis tubing (MWCO 3500 and 7000)

Cat.No.	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)

MWCO 3500

44310	25	16	2.0	25
44311	34	22	3.4	25

MWCO 7000

44313	25	16	2.0	28
44314	34	22	3.4	30

■ MEMBRA-CEL® dialysis tubing, MWCO 3500

RC RC, diameter 16 mm

(MEMBRA-CEL® Dialysis Tubing)

HS 39173200

Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	25 µm

Cat.No.	Size	EUR
44310.01	5 m	46,00
44310.02	30 m	172,00
44310.03	152 m	678,00

■ MEMBRA-CEL® dialysis tubing, MWCO 3500

RC, diameter 22 mm

HS 39173200

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.4 ml/cm
Nominal dry wall thickness	25 µm

Cat.No.	Size	EUR
44311.01	5 m	51,00
44311.02	30 m	186,00
44311.03	152 m	735,00

■ MEMBRA-CEL® dialysis tubing, MWCO 7000

RC, diameter 16 mm

HS 39173200

Nominal dry flat width	25 mm
Nominal dry diameter	16 mm
Approx. filling volume	2.0 ml/cm
Nominal dry wall thickness	28 µm

Cat.No.	Size	EUR
44313.01	5 m	40,00
44313.02	30 m	152,00
44313.03	152 m	570,00

MEMBRA-CEL® dialysis tubing, MWCO 7000

RC, diameter 22 mm

HS 39173200

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.4 ml/cm
Nominal dry wall thickness	30 µm

Cat.No.	Size	EUR
44314.01	5 m	45,00
44314.02	30 m	173,00
44314.03	152 m	635,00

Spectra/Por®

Spectra/Por® Standard

Dialysis membranes Spectra/Por® 1 – 7

- Made from regenerated cellulose
- Economical and sturdy for general applications like desalting, buffer exchange etc.
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 121 °C

Spectra/Por® 1, 3

- Packed dry
- With glycerol as protection for embrittlement, which can easily be removed by soaking in water
- Contain low level of heavy metal and sulfide impurities

Spectra/Por® 6

- Pre-wetted (containing 0.1 % sodium azide)
- Ready-to-use, no soaking for removal of glycerol necessary
- Contain low level of heavy metal and sulfide impurities

Spectra/Por® 7

- Highly pure membranes without any trace elements like heavy metals, sulfides
- Pre-wetted (containing 0.1 % sodium azide)
- Ready-to-use, no soaking for removal of glycerol necessary

Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 6.4 mm

(Spectra/Por® Dialysis Tubing, regenerated cellulose)

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size	EUR
44170.01	15 m	254,00

Spectra/Por® 1 Dialysis tubing (MWCO 6000 - 8000)

Cat. No.	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall thickness (µm)
44170	10	6.4	0.32	30 - 50
44171	23	14.6	1.7	30 - 50
44172	32	20.4	3.3	30 - 50
44173	40	25.5	5.1	30 - 50
44174	50	32	7.9	30 - 50
44175	100	64	32	70
44176	120	76	46	70

Spectra/Por® 3 Dialysis tubing (MWCO 3500)

44183	18	11.5	1.1	25 - 30
44184	45	29	6.4	25 - 30
44185	54	34	9.3	25 - 30

Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 14.6 mm

(Spectra/Por® Dialysis Tubing)

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	23 mm
Nominal dry diameter	14.6 mm
Approx. filling volume	1.7 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size	EUR
44171.01	30 m	254,00

Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 20.4 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	30 - 50 µm

Note:

The trial size of 5 m includes additionally one standard Spectra/Por® closures, one weighted Spectra/Por® closures and 5 opening picks.

Cat.No.	Size	EUR
44172.01	30 m	254,00
44172.02	5 m	129,00

■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 25.5 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	40 mm
Nominal dry diameter	25.5 mm
Approx. filling volume	5.1 ml/cm
Nominal dry wall thickness	30 - 50 µm

Cat.No.	Size	EUR
44173.01	30 m	272,00

■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 32 mm

(Spectra/Por™ Dialysis Tubing)

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	50 mm
Nominal dry diameter	32 mm
Approx. filling volume	7.9 ml/cm
Nominal dry wall thickness	30 - 50 µm

Note:

The trial size of 5 m includes additionally one standard Spectra/Por® closures, one weighted Spectra/Por® closures and 5 opening picks.

Cat.No.	Size	EUR
44174.01	30 m	316,00
44174.02	5 m	141,00

■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 64 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	100 mm
Nominal dry diameter	Approx. 64 mm
filling volume	32 ml/cm
Nominal dry wall thickness	70 µm

Cat.No.	Size	EUR
44175.01	15 m	392,00

■ Spectra/Por® 1 dialysis tubing, MWCO 6000 - 8000

RC, diameter 76 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	120 mm
Nominal dry diameter	76 mm
Approx. filling volume	46 ml/cm
Nominal dry wall thickness	70 µm

Cat.No.	Size	EUR
44176.01	15 m	406,00

■ Spectra/Por® 3 dialysis tubing, MWCO 3500

RC diameter 11.5 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	25 - 30 µm

Note:

The trial size of 5 m includes additionally one standard Spectra/Por® closures, one weighted Spectra/Por® closures and 5 opening picks.

Cat.No.	Size	EUR
44183.01	15 m	307,00
44183.02	5 m	129,00

■ Spectra/Por® 3 dialysis tubing, MWCO 3500

RC, diameter 29 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	25 - 30 µm

Cat.No.	Size	EUR
44184.01	15 m	307,00

■ Spectra/Por® 3 dialysis tubing, MWCO 3500

RC, diameter 34 mm

HS 39173200

Packed dry, with glycerol as protection for embrittlement, which can easily be removed by soaking in water. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	54 mm
Nominal dry diameter	34 mm
Approx. filling volume	9.3 ml/cm
Nominal dry wall thickness	25 - 30 µm

Note:

The trial size of 5 m includes additionally one standard Spectra/Por® closures, one weighted Spectra/Por® closures and 5 opening picks.

Cat.No.	Size	EUR
44185.01	15 m	325,00
44185.02	5 m	141,00

Spectra/Por® 6 Dialysis tubing

Cat. No.	Nominal Dry Flat Width (mm)	Nominal Dry diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
MWCO 1000				
44192	18	11.5	1.1	60 - 65
44193	38	24	4.6	60 - 65
44194	45	29	6.4	60 - 65
MWCO 2000				
44196	18	11.5	1.1	60 - 65
44197	38	24	4.6	60 - 65
44198	45	29	6.4	60 - 65
MWCO 3500				
44199	18	11.5	1.1	60 - 65
44200	45	29	6.4	60 - 65
44201	54	34	9.3	60 - 65
MWCO 8000				
44202	8	5.1	0.20	60 - 65
44203	12	7.5	0.45	60 - 65
44204	18	11.5	1.1	60 - 65
44205	24	15	1.8	60 - 65
44206	32	20.4	3.3	60 - 65
44207	40	25.5	5.1	60 - 65
44208	50	32	7.9	60 - 65
MWCO 10 000				
44209	8	5.1	0.20	60 - 65
44210	12	7.5	0.45	60 - 65
44211	18	11.5	1.1	60 - 65
44212	24	15	1.8	60 - 65
44213	32	20.4	3.3	60 - 65
44214	45	29	6.4	60 - 65
MWCO 15 000				
44215	8	5.1	0.20	60 - 65
44216	12	7.5	0.45	60 - 65
44217	18	11.5	1.1	60 - 65
44218	24	15	1.8	60 - 65
44219	32	20.4	3.3	60 - 65
44220	45	29	6.4	60 - 65
MWCO 25 000				
44221	8	5.1	0.20	60 - 65
44222	12	7.5	0.45	60 - 65
44223	18	11.5	1.1	60 - 65
44224	24	15	1.8	60 - 65
44225	28	18	2.5	60 - 65
44226	34	22	3.7	60 - 65
MWCO 50 000				
44227	10	6.4	0.32	60 - 65
44228	12	7.5	0.45	60 - 65
44229	28	18	2.5	60 - 65
44230	34	22	3.7	60 - 65

■ Spectra/Por® 6 dialysis tubing, MWCO 1000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 18 mm
 Nominal dry diameter 11.5 mm
 Approx. filling volume 1.1 ml/cm
 Nominal dry wall thickness 60 - 65 µm

Cat.No.	Size	EUR
44192.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 1000

RC, diameter 24 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 38 mm
 Nominal dry diameter 24 mm
 Approx. filling volume 4.6 ml/cm
 Nominal dry wall thickness 60 - 65 µm

Cat.No.	Size	EUR
44193.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 1000

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 45 mm
 Nominal dry diameter 29 mm
 Approx. filling volume 6.4 ml/cm
 Nominal dry wall thickness 60 - 65 µm

Cat.No.	Size	EUR
44194.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 2000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 18 mm
 Nominal dry diameter 11.5 mm
 Approx. filling volume 1.1 ml/cm
 Nominal dry wall thickness 60 - 65 µm

Cat.No.	Size	EUR
44196.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 2000

RC, diameter 24 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 38 mm
 Nominal dry diameter 24 mm
 Approx. filling volume 4.6 ml/cm
 Nominal dry wall thickness 60 - 65 µm

Cat.No.	Size	EUR
44197.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 2000

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44198.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 3500

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44199.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 3500

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44200.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 3500

RC, diameter 34 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	54 mm
Nominal dry diameter	34 mm
Approx. filling volume	9.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44201.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44202.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44203.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44204.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44205.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44206.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 25.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	40 mm
Nominal dry diameter	25.5 mm
Approx. filling volume	5.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44207.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 8000

RC, diameter 32 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	50 mm
Nominal dry diameter	32 mm
Approx. filling volume	7.9 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44208.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44209.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44210.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44211.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44212.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44213.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 10 000

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44214.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44215.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44216.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 11.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44217.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44218.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 20.4 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44219.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 15 000

RC, diameter 29 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44220.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 5.1 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44221.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44222.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 11.5 mm

HS 39173200

s Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44223.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 15 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44224.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 18 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	28 mm
Nominal dry diameter	18 mm
Approx. filling volume	2.5 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44225.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 25 000

RC, diameter 22 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.7 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44226.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 6.4 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44227.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 7.5 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 12 mm
 Nominal dry diameter Approx. 7.5 mm
 filling volume 0.45 ml/cm
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size	EUR
44228.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 18 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 28 mm
 Nominal dry diameter 18 mm
 Approx. filling volume 2.5 ml/cm
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size	EUR
44229.01	10 m	363,00

■ Spectra/Por® 6 dialysis tubing, MWCO 50 000

RC, diameter 22 mm

HS 39173200

Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary. Contains low level of heavy metal and sulfide impurities.

Nominal dry flat width 34 mm
 Nominal dry diameter 22 mm
 Approx. filling volume 3.7 ml/cm
 Nominal dry wall thickness 60 – 65 µm

Cat.No.	Size	EUR
44230.01	10 m	363,00

Spectra/Por® 7 Dialysis tubing

Cat. No.	Nominal Dry Flat Width (mm)	Nominal Dry diameter (mm)	Approx. Filling Volume (ml/cm)	Nominal Dry Wall Thickness (µm)
MWCO 1000				
44231	18	11.5	1.1	60 - 65
44232	38	24	4.6	60 - 65
44233	45	29	6.4	60 - 65
MWCO 2000				
44234	18	11.5	1.1	60 - 65
44235	38	24	4.6	60 - 65
44236	45	29	6.4	60 - 65
MWCO 3500				
44237	18	11.5	1.1	60 - 65
44238	45	29	6.4	60 - 65
44239	54	34	9.3	60 - 65
MWCO 8000				
44240	8	5.1	0.20	60 - 65
44241	12	7.5	0.45	60 - 65
44242	18	11.5	1.1	60 - 65
44243	24	15	1.8	60 - 65
44244	32	20.4	3.3	60 - 65
44245	40	25.5	5.1	60 - 65
44246	50	32	7.9	60 - 65
MWCO 10 000				
44247	8	5.1	0.20	60 - 65
44248	12	7.5	0.45	60 - 65
44249	18	11.5	1.1	60 - 65
44250	24	15	1.8	60 - 65
44251	32	20.4	3.3	60 - 65
44252	45	29	6.4	60 - 65
MWCO 15 000				
44253	8	5.1	0.20	60 - 65
44254	12	7.5	0.45	60 - 65
44255	18	11.5	1.1	60 - 65
44256	24	15	1.8	60 - 65
44257	32	20.4	3.3	60 - 65
44258	45	29	6.4	60 - 65
MWCO 25 000				
44259	8	5.1	0.20	60 - 65
44260	12	7.5	0.45	60 - 65
44261	18	11.5	1.1	60 - 65
44262	24	15	1.8	60 - 65
44263	28	18	2.5	60 - 65
44264	34	22	3.7	60 - 65
MWCO 50 000				
44265	12	7.5	0.45	60 - 65
44266	28	18	2.5	60 - 65
44267	34	22	3.7	60 - 65

■ Spectra/Por® 7 dialysis tubing, MWCO 1000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44231.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 1000

RC, diameter 24 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	38 mm
Nominal dry diameter	24 mm
Approx. filling volume	4.6 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44232.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 1000

RC, diameter 29 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44233.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 2000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44234.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 2000

RC, diameter 24 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	38 mm
Nominal dry diameter	24 mm
Approx. filling volume	4.6 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44235.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 2000

RC, diameter 29 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44236.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 3500

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44237.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 3500

RC, diameter 28.6 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	45 mm
Nominal dry diameter	28.6 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44238.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 3500

RC, diameter 34.4 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	54 mm
Nominal dry diameter	34.4 mm
Approx. filling volume	9.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44239.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 5.1 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44240.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 7.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44241.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44242.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 15 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44243.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 20.4 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44244.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 25.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	40 mm
Nominal dry diameter	25.5 mm
Approx. filling volume	5.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44245.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 8000

RC, diameter 32 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	50 mm
Nominal dry diameter	32 mm
Approx. filling volume	7.9 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44246.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 5.1 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44247.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 7.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44248.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44249.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 15 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44250.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 20.4 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44251.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 10 000

RC, diameter 29 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44252.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 5.1 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44253.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 7.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44254.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44255.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 15 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44256.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 20.4 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	32 mm
Nominal dry diameter	20.4 mm
Approx. filling volume	3.3 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44257.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 15 000

RC, diameter 29 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	45 mm
Nominal dry diameter	29 mm
Approx. filling volume	6.4 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44258.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 5.1 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	8 mm
Nominal dry diameter	5.1 mm
Approx. filling volume	0.20 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44259.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 7.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44260.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 11.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	18 mm
Nominal dry diameter	11.5 mm
Approx. filling volume	1.1 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44261.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 15 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	24 mm
Nominal dry diameter	15 mm
Approx. filling volume	1.8 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44262.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 18 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	28 mm
Nominal dry diameter	18 mm
Approx. filling volume	2.5 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44263.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 25 000

RC, diameter 22 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.7 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44264.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 50 000

RC, diameter 7.5 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	12 mm
Nominal dry diameter	7.5 mm
Approx. filling volume	0.45 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44265.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 50 000

RC, diameter 18 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	28 mm
Nominal dry diameter	18 mm
Approx. filling volume	2.5 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44266.01	5 m	309,00

■ Spectra/Por® 7 dialysis tubing, MWCO 50 000

RC, diameter 22 mm

HS 39173200

Highly pure membranes without any trace elements like heavy metals, sulfides. Pre-wetted (containing 0.1 % sodium azide). Ready-to-use, no soaking for removal of glycerol necessary.

Nominal dry flat width	34 mm
Nominal dry diameter	22 mm
Approx. filling volume	3.7 ml/cm
Nominal dry wall thickness	60 – 65 µm

Cat.No.	Size	EUR
44267.01	5 m	309,00

Ion Exchange Media:

see special chapter at p. 375

Spectra/Por® Biotech**Dialysis membranes Spectra/Por® Biotech**

- Pre-wetted (containing 0.1 % sodium azide)
- Ultra-pure, due to production process no contamination by trace elements like heavy metals, sulfides or glycerols
- Specifically engineered for precise MWCO (Molecular weight cut-off)
- Read-to-use, no pre-treatment necessary

Dialysis membranes Spectra/Por® Biotech RC

- Made from regenerated cellulose (RC)
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 60 °C

Dialysis membranes Spectra/Por® Biotech CE

- Made from cellulose ester (CE)
- Very broad range of MWCO
- Biologically inert, negligible protein adsorption
- Tolerate only weak or dilute acids and bases as well as mild alcohols
- Sensitive against organic solvents
- Suitable for pH range 2 – 9 and temperatures 4 – 37 °C

Regenerated Cellulose (RC)**Dialysis Membranes Spectra/Por® Biotech RC**

- Made from regenerated cellulose (RC)
- Pre-wetted (containing 0.1 % sodium azide)
- Ultra-pure, due to production process no contamination by trace elements like heavy metals, sulfides or glycerols
- Specifically engineered for precise Molecular weight cut-off (MWCO)
- Read-to-use, no pre-treatment necessary
- Highly resistant against chemicals
- Suitable for pH range 2 – 12 and temperatures 4 – 60 °C

Spectra/Por® Biotech Regenerated Cellulose (RC)			
Cat. No.	Nominal Dry Flat Width (mm)	Nominal Dry diameter (mm)	Approx. Filling Volume (ml/cm)
MWCO 3500 - 5000			
44308	10	6.4	0.32
44309	16	10	0.79
MWCO 8000 - 10 000			
44554	10	6.4	0.32
44555	16	10	0.79
MWCO 20 000			
44556	10	6.4	0.32
44557	16	10	0.79

Spectra/Por® Biotech dialysis tubing, MWCO 3 500 - 5000 RC, diameter 6.4 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm

Note: The trial size of 0.5 mm includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44308.01	5 m	238,00
44308.02	0,5 m	123,00

Spectra/Por® Biotech dialysis tubing, MWCO 3 500 - 5000 RC, diameter 10 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width	16 mm
Nominal dry diameter	10 mm
Approx. filling volume	0.79 ml/cm

Cat.No.	Size	EUR
44309.01	5 m	238,00

Spectra/Por® Biotech dialysis tubing, MWCO 8 000 - 10 000 RC, diameter 6.4 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm

Cat.No.	Size	EUR
44554.01	5 m	238,00

Spectra/Por® Biotech dialysis tubing, MWCO 8 000 - 10 000 RC, diameter 10 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width	16 mm
Nominal dry diameter	10 mm
Approx. filling volume	0.79 ml/cm

Note: The trial size of 0.5 mm includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44555.01	5 m	238,00
44555.02	1 m	123,00

Spectra/Por® Biotech dialysis tubing, MWCO 20 000 RC, diameter 6.4 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm

Cat.No.	Size	EUR
44556.01	5 m	238,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 20 000

RC, diameter 10 mm

HS 39173200

Made from regenerated cellulose (RC), highly resistant against chemicals. Suitable for pH range 2 – 12 and temperatures 4 – 60 °C.

Nominal dry flat width 16 mm
Nominal dry diameter 10 mm
Approx. filling volume 0.79 ml/cm

Note: The trial size of 0.5 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44557.01	5 m	238,00
44557.02	1 m	123,00

Cellulose Ester (CE)

Dialysis Membranes Spectra/Por® Biotech CE

- Made from cellulose ester (CE)
- Pre-wetted (containing 0.1 % sodium azide)
- Ultra-pure, due to production process no contamination by trace elements like heavy metals, sulfides or glycerols
- Very broad range of molecular weight cut-off (MWCO)
- Biologically inert, negligible protein adsorption
- Ready-to-use, no pre-treatment necessary
- Tolerate only weak or dilute acids and bases as well as mild alcohols
- Sensitive against organic solvents
- Suitable for pH range 2 – 9 and temperatures 4 – 37 °C

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 - 500

CE, diameter 6.4 mm

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 10 mm
Nominal dry diameter 6.4 mm
Approx. filling volume 0.32 ml/cm

Cat.No.	Size	EUR
44278.01	10 m	367,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 - 500

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols. Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
Nominal dry diameter 10 mm
Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44279.01	10 m	421,00
44279.02	1 m	141,00

Spectra/Por® Biotech Cellulose Ester (CE)

Cat. No.	Nominal Dry Flat Width (mm)	Nominal Dry Diameter (mm)	Approx. Filling Volume (ml/cm)
MWCO 100 - 500			
44278	10	6.4	0.32
44279	16	10	0.79
44280	24	16	1.8
44281	31	20	3.1
MWCO 500 - 1000			
44282	10	6.4	0.32
44283	16	10	0.79
44284	24	16	1.8
44285	31	20	3.1
MWCO 3500 - 5000			
44286	10	6.4	0.32
44287	16	10	0.79
44288	24	16	1.8
44289	31	20	3.1
MWCO 8000 - 10 000			
44290	10	6.4	0.32
44291	16	10	0.79
44292	24	16	1.8
44293	31	20	3.1
MWCO 20 000			
44294	10	6.4	0.32
44295	16	10	0.79
44296	24	16	1.8
44297	31	20	3.1
MWCO 50 000			
44298	10	6.4	0.32
44299	16	10	0.79
44300	24	16	1.8
44301	31	20	3.1
MWCO 100 000			
44302	10	6.4	0.32
44303	16	10	0.79
44304	24	16	1.8
44305	31	20	3.1
MWCO 300 000			
44306	16	10	0.79
MWCO 1 000 000			
44307	16	10	0.79

■ **Spectra/Por® Biotech dialysis tubing, MWCO 100 - 500**

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols. Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 24 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 1.8 ml/cm

Cat.No.	Size	EUR
44280.01	10 m	484,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 100 - 500**

CE, diameter 20 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols. Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 31 mm
 Nominal dry diameter 20 mm
 Approx. filling volume 3.1 ml/cm

Cat.No.	Size	EUR
44281.01	10 m	508,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 500 - 1000**

CE, diameter 6.4 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols. Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 10 mm
 Nominal dry diameter 6.4 mm
 Approx. filling volume 0.32 ml/cm

Cat.No.	Size	EUR
44282.01	10 m	367,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 500 - 1000**

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
 Nominal dry diameter 10 mm
 Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44283.01	10 m	421,00
44283.02	1 m	153,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 500 - 1000**

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 24 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 1.8 ml/cm

Cat.No.	Size	EUR
44284.01	10 m	484,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 500 - 1000**

CE, diameter 20 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 31 mm
 Nominal dry diameter 20 mm
 Approx. filling volume 3.1 ml/cm

Cat.No.	Size	EUR
44285.01	10 m	508,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 3500 - 5000**

CE, diameter 6.4 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 10 mm
 Nominal dry diameter 6.4 mm
 Approx. filling volume 0.32 ml/cm

Cat.No.	Size	EUR
44286.01	10 m	367,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 3500 - 5000**

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
 Nominal dry diameter 10 mm
 Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44287.01	10 m	421,00
44287.02	1 m	153,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 3500 - 5000**

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 24 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 1.8 ml/cm

Cat.No.	Size	EUR
44288.01	10 m	484,00

■ **Spectra/Por® Biotech dialysis tubing,****MWCO 3500 - 5000 CE, diameter 20 mm**

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 31 mm
 Nominal dry diameter 20 mm
 Approx. filling volume 3.1 ml/cm

Cat.No.	Size	EUR
44289.01	10 m	508,00

■ **Spectra/Por® Biotech dialysis tubing,****MWCO 8000 - 10 000 CE, diameter 6.4 mm**

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 10 mm
 Nominal dry diameter 6.4 mm
 Approx. filling volume 0.32 ml/cm

Cat.No.	Size	EUR
44290.01	10 m	367,00

■ **Spectra/Por® Biotech dialysis tubing,****MWCO 8000 - 10 000 CE, diameter 10 mm**

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
 Nominal dry diameter 10 mm
 Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44291.01	10 m	421,00
44291.02	1 m	153,00

■ **Spectra/Por® Biotech dialysis tubing,****MWCO 8000 - 10 000 CE, diameter 16 mm**

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 24 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 1.8 ml/cm

Cat.No.	Size	EUR
44292.01	10 m	484,00

■ **Spectra/Por® Biotech dialysis tubing,****MWCO 8000 - 10 000 CE, diameter 20 mm**

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 31 mm
 Nominal dry diameter 20 mm
 Approx. filling volume 3.1 ml/cm

Cat.No.	Size	EUR
44293.01	10 m	508,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 20 000**

CE, diameter 6.4 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 10 mm
 Nominal dry diameter 6.4 mm
 Approx. filling volume 0.32 ml/cm

Cat.No.	Size	EUR
44294.01	10 m	367,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 20 000**

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols. Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
 Nominal dry diameter 10 mm
 Approx. filling volume 0.79 ml/cm

Cat.No.	Size	EUR
44295.01	10 m	421,00
44295.02	1 m	153,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 20 000**

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 24 mm
 Nominal dry diameter 16 mm
 Approx. filling volume 1.8 ml/cm

Cat.No.	Size	EUR
44296.01	10 m	484,00

■ **Spectra/Por® Biotech dialysis tubing, MWCO 20 000**

CE, diameter 20 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 31 mm
 Nominal dry diameter 20 mm
 Approx. filling volume 3.1 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44297.01	10 m	508,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 50 000

CE, diameter 6.4 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44298.01	10 m	367,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 50 000

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	16 mm
Nominal dry diameter	10 mm
Approx. filling volume	0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44299.01	10 m	421,00
44299.02	1 m	153,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 50 000

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	24 mm
Nominal dry diameter	16 mm
Approx. filling volume	1.8 ml/cm

Cat.No.	Size	EUR
44300.01	10 m	484,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 50 000

CE, diameter 20 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	31 mm
Nominal dry diameter	20 mm
Approx. filling volume	3.1 ml/cm

Cat.No.	Size	EUR
44301.01	10 m	508,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 000

CE, diameter 6.4 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	10 mm
Nominal dry diameter	6.4 mm
Approx. filling volume	0.32 ml/cm

Cat.No.	Size	EUR
44302.01	10 m	367,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 000

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	16 mm
Nominal dry diameter	10 mm
Approx. filling volume	0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44303.01	10 m	421,00
44303.02	1 m	153,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 000

CE, diameter 16 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	24 mm
Nominal dry diameter	16 mm
Approx. filling volume	1.8 ml/cm

Cat.No.	Size	EUR
44304.01	10 m	484,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 100 000

CE, diameter 20 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width	31 mm
Nominal dry diameter	20 mm
Approx. filling volume	3.1 ml/cm

Cat.No.	Size	EUR
44305.01	10 m	508,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 300 000

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
Nominal dry diameter 10 mm
Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44306.01	10 m	421,00
44306.02	1 m	153,00

■ Spectra/Por® Biotech dialysis tubing, MWCO 1 000 000

CE, diameter 10 mm

HS 39173200

Made from cellulose ester (CE). Very broad range of MWCO, biologically inert, negligible protein adsorption. Tolerate only weak or dilute acids and bases as well as mild alcohols.

Sensitive against organic solvents. Suitable for pH range 2 – 9 and temperatures 4 – 37 °C.

Nominal dry flat width 16 mm
Nominal dry diameter 10 mm
Approx. filling volume 0.79 ml/cm

Note:

The trial size of 1 m includes additionally a pair of universal closures and 5 opening picks.

Cat.No.	Size	EUR
44307.01	10 m	421,00
44307.02	1 m	153,00

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

Spectra/Por® Float-A-Lyzer® G2**Ready-to-Use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane.**

- Color-coded caps for easy identification
- 95 – 98 % sample recovery
- Because of negligible protein adsorption suitable for direct use with biological sample material
- Re-sealable cap allows sample handling without struggling with closures and leaking knots or risking puncturing the membrane with hypodermic needles
- Volume specific dilution control, < 1 % sample dilution

Float-A-Lyzer® G2, MWCO 100 - 500 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
 Length: 5 cm
 Membrane diameter: 10 mm
 Top piece diameter: 23 mm
 Flotation ring: 38 mm

Cat.No.	Size	EUR
44320.01	12 pieces	118,00

Float-A-Lyzer® G2, MWCO 100 - 500 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
 Length: 10 cm
 Membrane diameter: 10 mm
 Top piece diameter: 23 mm
 Flotation ring: 38 mm

Cat.No.	Size	EUR
44321.01	12 pieces	128,00

Float-A-Lyzer® G2, MWCO 100 - 500 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
 Length: 16 cm
 Membrane diameter: 10 mm
 Top piece diameter: 23 mm
 Flotation ring: 38 mm

Cat.No.	Size	EUR
44322.01	12 pieces	128,00

Float-A-Lyzer® GE (CE)

Membrane diameter: 10 mm; Top piece diameter: 23 mm

Flotation ring: 38 mm; 12 pieces/package

Cat. No.	Volume Size (ml)	Length (cm)
MWCO 100 - 500		
44320	1	5
44321	5	10
44322	10	16
MWCO 500 - 1000		
44317	1	5
44318	5	10
44319	10	16
MWCO 3500 - 5000		
44323	1	5
44324	5	10
44325	10	16
MWCO 8000 - 10 000		
44326	1	5
44327	5	10
44328	10	16
MWCO 20 000		
44329	1	5
44330	5	10
44331	10	16
MWCO 50 000		
44332	1	5
44333	5	10
44334	10	16
MWCO 100 000		
44335	1	5
44336	5	10
44337	10	16
MWCO 300 000		
44135	1	5
44136	5	10
44137	10	16
MWCO 1 000 000		
44156	1	5
44157	5	10
44158	10	16

Float-A-Lyzer® G2, MWCO 500 - 1000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
 Length: 5 cm
 Membrane diameter: 10 mm
 Top piece diameter: 23 mm
 Flotation ring: 38 mm

Cat.No.	Size	EUR
44317.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 500 - 1000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44318.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 500 - 1000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44319.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 3500 - 5000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44323.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 3500 - 5000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44324.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 3500 - 5000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44325.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 8000 - 10 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44326.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 8000 - 10 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44327.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 8000 - 10 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44328.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 20 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44329.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 20 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44330.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 20 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44331.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 50 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44332.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 50 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44333.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 50 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44334.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 100 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44335.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 100 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44336.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 100 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44337.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 300 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44135.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 300 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44136.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 300 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44137.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 1 000 000 CE, 1 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 1 ml
Length: 5 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44156.01	12 pieces	118,00

■ Float-A-Lyzer® G2, MWCO 1 000 000 CE, 5 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 5 ml
Length: 10 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44157.01	12 pieces	128,00

■ Float-A-Lyzer® G2, MWCO 1 000 000 CE, 10 ml

HS 39173300

Ready-to-use dialysis system featuring ultra-pure Biotech Cellulose Ester Membrane. The device is a dialysis tubing with polycarbonate closures at both ends. Closed with a screw-on cap which enables sample handling without struggling with closures and leaking knots or risking puncturing the membrane and in-process sampling.

Delivered with a flotation ring for improved buoyancy and vertical orientation.

Volume size: 10 ml
Length: 16 cm
Membrane diameter: 10 mm
Top piece diameter: 23 mm
Flotation ring: 38 mm

Cat.No.	Size	EUR
44158.01	12 pieces	128,00

Products for Cell Culture:
see Special Chapter at p. 310

Spectra/Por® microFloat-A-Lyzer®

Spectra/Por® microFloat-A-Lyzer® for the easy and efficient dialysis of very small sample volumes, available in volume sizes of 100 – 200 µl and 400 – 500 µl

- 7 concise MWCOs available with color-coded caps for easy identification
- Leak-proof and re-sealable Luer-Lok® cap – open and close for in-process sampling
- Easy syringe loading and sample retrieval (syringe included) – no needle
- Low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane - no heavy metal and sulphide contaminants and therefore no pretreatment necessary
- 95 – 98 % sample recovery with minimal dilution while maintaining 98 % sample purity
- Units interlock for simultaneous dialysis of multiple samples

microFloat-A-Lyzer®

Width: 4.5 cm; Thickness: 1.9 cm

Membrane flat width: 10 mm; Membrane diameter: 6.4 mm

12 pieces/package

Cat. No.	Volume Size (µl)	Height (cm)	Colour Code
MWCO 100 - 500			
44540	100 - 200	4.4	green
44541	400 - 500	6.3	green
MWCO 500 - 1000			
44542	100 - 200	4.4	orange
44543	400 - 500	6.3	orange
MWCO 3500 - 5000			
44544	100 - 200	4.4	black
44545	400 - 500	6.3	black
MWCO 8000 - 10 000			
44546	100 - 200	4.4	yellow
44547	400 - 500	6.3	yellow
MWCO 20 000			
44548	100 - 200	4.4	red
44549	400 - 500	6.3	red
MWCO 50 000			
44550	100 - 200	4.4	white
44551	400 - 500	6.3	white
MWCO 100 000			
44552	100 - 200	4.4	blue
44553	400 - 500	6.3	blue

microFloat-A-Lyzer®, MWCO 100 - 500 CE, 100 – 200 µl

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	100 – 200 µl
Height:	4.4 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	green

Cat.No.	Size	EUR
44540.01	12 pieces	133,00

microFloat-A-Lyzer®, MWCO 100 - 500 CE, 400 – 500 µl

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	400 – 500 µl
Height:	6.3 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane diameter:	6.4 mm
Membrane flat width:	10 mm
Colour code:	green

Cat.No.	Size	EUR
44541.01	12 pieces	133,00

microFloat-A-Lyzer®, MWCO 500 - 1000 CE, 100 – 200 µl

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	100 – 200 µl
Height:	4.4 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	orange

Cat.No.	Size	EUR
44542.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 500 - 1000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	400 – 500 µl
Height:	6.3 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	orange

Cat.No.	Size	EUR
44543.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 3500 - 5000 CE, 100 – 200 µl**

HS 39173300

Ready-to-Use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	100 – 200 µl
Height:	4.4 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	black

Cat.No.	Size	EUR
44544.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 3500 - 5000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	400 – 500 µl
Height:	6.3 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	black

Cat.No.	Size	EUR
44545.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 8000 - 10 000 CE, 100 – 200 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	100 – 200 µl
Height:	4.4 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	yellow

Cat.No.	Size	EUR
44546.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 8000 - 10 000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	400 – 500 µl
Height:	6.3 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	yellow

Cat.No.	Size	EUR
44547.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 20 000 CE, 100 – 200 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size:	100 – 200 µl
Height:	4.4 cm
Width:	4.5 cm
Thickness:	1.9 cm
Membrane flat width:	10 mm
Membrane diameter:	6.4 mm
Colour code:	red

Cat.No.	Size	EUR
44548.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 20 000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size: 400 – 500 µl
 Height: 6.3 cm
 Width: 4.5 cm
 Thickness: 1.9 cm
 Membrane flat width: 10 mm
 Membrane diameter: 6.4 mm
 Colour code: red

Cat.No.	Size	EUR
44549.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 50 000 CE, 100 – 200 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size: 100 – 200 µl
 Height: 4.4 cm
 Width: 4.5 cm
 Thickness: 1.9 cm
 Membrane flat width: 10 mm
 Membrane diameter: 6.4 mm
 Colour code: white

Cat.No.	Size	EUR
44550.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 50 000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size: 400 – 500 µl
 Height: 6.3 cm
 Width: 4.5 cm
 Thickness: 1.9 cm
 Membrane flat width: 10 mm
 Membrane diameter: 6.4 mm
 Colour code: white

Cat.No.	Size	EUR
44551.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 100 000 CE, 100 – 200 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size: 100 – 200 µl
 Height: 4.4 cm
 Width: 4.5 cm
 Thickness: 1.9 cm
 Membrane flat width: 10 mm
 Membrane diameter: 6.4 mm
 Colour code: blue

Cat.No.	Size	EUR
44552.01	12 pieces	133,00

■ **microFloat-A-Lyzer®, MWCO 100 000 CE, 400 – 500 µl**

HS 39173300

Ready-to-use dialysis system for the easy and efficient dialysis of very small sample volumes. Uses low protein-binding ultrapure Biotech Grade Cellulose Ester Membrane and does therefore not require pre-treatment or cleaning. The preformed tubular geometry provides maximum membrane surface area for dialysis efficiency, and collapses flat permitting retrieval of every drop. The leak-proof Luer-Lok® cap provides easy access with the included syringe for easy loading, in-process sampling and sample retrieval. The unit stands upright on bench-tops during experimental preparation as well as floats and self-oriens during dialysis.

The different MWCOs are easily distinguishable by their colour code. The units also interlock for the simultaneous dialysis of multiple samples.

Volume size: 400 – 500 µl
 Height: 6.3 cm
 Width: 4.5 cm
 Thickness: 1.9 cm
 Membrane flat width: 10 mm
 Membrane diameter: 6.4 mm
 Colour code: blue

Cat.No.	Size	EUR
44553.01	12 pieces	133,00

**SingleQuant Assay Kit for
protein quantification:
see special chapter at p. 134**

Closures

Spectra/Por® Closures

Autoclavable, made from polypropylene
Spectra/Por® Closures are only suitable for membranes from regenerated cellulose.

- Standard Closure Type**

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end. Available in orange, white, green and blue for easy sample identification.

- Weighted Closure Type**

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample. Available in white color.

- Paired Standard and Weighted Closures**

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing. Available in orange (standard) and white (weighted).

- Magnetic Closure Type**

Spectra/Por® Magnetic-Weighted Closures contain a magnetic fluorocarbon coated stainless steel bar, eliminating the need for conventional stir bars. When applied to the bottom end of the dialysis tubing, this closure provides complete submersion and gentle rotation of the sample. Available in red color.

- Universal Closures**

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing. Available in white, red, yellow, green, blue and black for easy sample identification.

Spectra/Por® Closures

- Spectra/Por® closures blue, 12 mm**

(Spectra/Por® Closures)
HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44359.01	10 pieces	83,00

- Spectra/Por® closures blue, 23 mm**

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44360.01	10 pieces	93,00

- Spectra/Por® closures blue, 35 mm**

(Spectra/Por® Closures)
HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44361.01	10 pieces	99,00

Spectra/Por® Closures

Closure Type	Cat. No.	Color	Size mm
Standard	44359	blue	12
	44360	blue	23
	44361	blue	35
	44362	blue	55
	44363	blue	75
	44353	green	12
	44354	green	23
	44355	green	35
	44356	green	55
	44357	green	75
	44341	orange	12
	44342	orange	23
	44343	orange	35
	44344	orange	55
	44345	orange	75
	44347	white	12
	44348	white	23
	44349	white	35
	44350	white	55
	44351	white	75
Paired	44371	orange/white	12
	44372	orange/white	23
	44373	orange/white	35
	44374	orange/white	55
	44375	orange/white	75
Weighted	44365	white	12
	44366	white	23
	44367	white	35
	44368	white	55
	44369	white	75
Weighted magnetic	44376	red	23
	44377	red	35
	44378	red	55
	44379	red	75

- Spectra/Por® closures blue, 55 mm**

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44362.01	10 pieces	100,00

- Spectra/Por® closures blue, 75 mm**

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44363.01	10 pieces	100,00

■ Spectra/Por® closures green, 12 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44353.01	10 pieces	83,00

■ Spectra/Por® closures green, 23 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44354.01	10 pieces	93,00

■ Spectra/Por® closures green, 35 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44355.01	10 pieces	99,00

■ Spectra/Por® closures green, 55 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44356.01	10 pieces	100,00

■ Spectra/Por® closures green, 75 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44357.01	10 pieces	100,00

■ Spectra/Por® closures orange, 12 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44341.01	10 pieces	83,00

■ Spectra/Por® closures orange, 23 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44342.01	10 pieces	93,00

■ Spectra/Por® closures orange, 35 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44343.01	10 pieces	99,00

■ Spectra/Por® closures orange, 55 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44344.01	10 pieces	100,00

■ Spectra/Por® closures orange, 75 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44345.01	10 pieces	100,00

■ Spectra/Por® closures white, 12 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44347.01	10 pieces	83,00

■ Spectra/Por® closures white, 23 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44348.01	10 pieces	93,00

■ Spectra/Por® closures white, 35 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44349.01	10 pieces	99,00

■ Spectra/Por® closures white, 55 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44350.01	10 pieces	100,00

■ Spectra/Por® closures white, 75 mm

HS 39174000

Since Spectra/Por® Closures float, they aid in buoyancy and vertical orientation when applied to the tubing top end.

Cat.No.	Size	EUR
44351.01	10 pieces	100,00

■ Spectra/Por® closures paired, white/orange, 12 mm

10 weighted, 10 standard

HS 39174000

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing.

Cat.No.	Size	EUR
44371.01	20 pieces	152,00

■ Spectra/Por® closures paired, white/orange, 23 mm

10 weighted, 10 standard

HS 39174000

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing.

Cat.No.	Size	EUR
44372.01	20 pieces	167,00

■ Spectra/Por® closures paired, white/orange, 35 mm

10 weighted, 10 standard

HS 39174000

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing.

Cat.No.	Size	EUR
44373.01	20 pieces	181,00

■ Spectra/Por® closures paired, white/orange, 55 mm

10 weighted, 10 standard

HS 39174000

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing.

Cat.No.	Size	EUR
44374.01	20 pieces	187,00

■ Spectra/Por® closures paired, white/orange, 75 mm

10 weighted, 10 standard

HS 39174000

The ultimate sample buoyancy and vertical orientation can be achieved by applying both a Standard and Weighted Spectra/Por® Closure to opposite ends of the same dialysis tubing.

Cat.No.	Size	EUR
44375.01	20 pieces	196,00

■ Spectra/Por® weighted closures white, 12 mm

HS 39174000

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample.

Cat.No.	Size	EUR
44365.01	10 pieces	94,00

■ Spectra/Por® weighted closures white, 23 mm

HS 39174000

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample.

Cat.No.	Size	EUR
44366.01	10 pieces	102,00

■ Spectra/Por® weighted closures white, 35 mm

HS 39174000

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample.

Cat.No.	Size	EUR
44367.01	10 pieces	108,00

■ Spectra/Por® weighted closures white, 55 mm

HS 39174000

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample.

Cat.No.	Size	EUR
44368.01	10 pieces	110,00

■ Spectra/Por® weighted closures white, 75 mm

HS 39174000

Spectra/Por® Weighted Closures encase an acid-washed, fluorocarbon coated, stainless steel bar. When applied to one end of the dialysis tubing, the weighted closure acts like an anchor to maintain a vertical orientation of the sample.

Cat.No.	Size	EUR
44369.01	10 pieces	116,00

■ Spectra/Por® weighted magnetic closures, red, 23 mm

HS 39174000

Spectra/Por® Magnetic-Weighted Closures contain a magnetic fluorocarbon coated stainless steel bar, eliminating the need for conventional stir bars. When applied to the bottom end of the dialysis tubing, this closure provides complete submersion and gentle rotation of the sample.

Cat.No.	Size	EUR
44376.01	2 pieces	64,00

■ Spectra/Por® weighted magnetic closures, red, 35 mm

HS 39174000

Spectra/Por® Magnetic-Weighted Closures contain a magnetic fluorocarbon coated stainless steel bar, eliminating the need for conventional stir bars. When applied to the bottom end of the dialysis tubing, this closure provides complete submersion and gentle rotation of the sample.

Cat.No.	Size	EUR
44377.01	2 pieces	67,00

■ Spectra/Por® weighted magnetic closures, red, 55 mm

HS 39174000

Spectra/Por® Magnetic-Weighted Closures contain a magnetic fluorocarbon coated stainless steel bar, eliminating the need for conventional stir bars. When applied to the bottom end of the dialysis tubing, this closure provides complete submersion and gentle rotation of the sample.

Cat.No.	Size	EUR
44378.01	2 pieces	67,00

■ Spectra/Por® weighted magnetic closures, red, 75 mm

HS 39174000

Spectra/Por® Magnetic-Weighted Closures contain a magnetic fluorocarbon coated stainless steel bar, eliminating the need for conventional stir bars. When applied to the bottom end of the dialysis tubing, this closure provides complete submersion and gentle rotation of the sample.

Cat.No.	Size	EUR
44379.01	2 pieces	74,00

Products for Molecular Biology:
see special chapter at p. 289

Universal Closures

Universal Closures

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing. Available in white, red, yellow, green, blue and black for easy sample identification.

Universal Closures

Closure Type	Cat. No.	Color	Size mm
Universal	44385	black	50
	44391	black	70
	44383	blue	50
	44389	blue	70
	44384	green	55
	44390	green	70
	44381	red	50
	44387	red	70
	44393	red	110
	44396	red	150
	44380	white	50
	44386	white	70
	44392	white	110
	44395	white	150
	44382	yellow	50
	44388	yellow	70
	44394	yellow	110
	44397	yellow	150

Universal closure black, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44385.01	10 pieces	85,00

Universal closure black, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44391.01	10 pieces	99,00

Universal closure blue, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44383.01	10 pieces	85,00

Universal closure blue, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44389.01	10 pieces	99,00

Universal closure green, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44384.01	10 pieces	85,00

Universal closure green, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44390.01	10 pieces	99,00

Universal closure red, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44381.01	10 pieces	85,00

Universal closure red, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44387.01	10 pieces	99,00

Universal closure red, 110 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44393.01	10 pieces	107,00

■ Universal closure red, 150 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44396.01	10 pieces	107,00

■ Universal closure white, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44380.01	10 pieces	85,00

■ Universal closure white, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44386.01	10 pieces	99,00

■ Universal closure white, 110 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44392.01	10 pieces	107,00

■ Universal closure white, 150 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44395.01	10 pieces	107,00

■ Universal closure yellow, 50 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44382.01	10 pieces	85,00

■ Universal closure yellow, 70 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44388.01	10 pieces	99,00

■ Universal closure yellow, 110 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44394.01	10 pieces	107,00

■ Universal closure yellow, 150 mm

HS 39174000

Made from polyamide. Not autoclavable, for sterilization use gamma irradiation or ethylene oxide. Specifically designed with gentle sealing ridges, Universal Closures are the ideal all-purpose closure that creates a reliable seal for all membrane grades, types and thicknesses of tubing.

Cat.No.	Size	EUR
44397.01	10 pieces	107,00

Accessories

■ Glass Dialysis Weights

HS 70021000

Glass Dialysis Weights can be inserted into any membrane type of tubing to help maintain vertical orientation during dialysis. The quantity of weights required depends on the tubing length, flat-width and amount of head-space. Glass Dialysis Weights are inert and non-binding. Average diameter for glass weights is 15 mm.

Cat.No.	Size	EUR
44400.01	50 pieces	87,00

■ Spectra/Gel® Absorbent

HS 38220000

Ideal for concentrating protein and large molecular species in dialysis tubing and Float-A-Lyzer® devices. Apply the dry polyacrylate-polyalcohol compound to any MWCO membrane to draw and bind water and efficiently reduce sample volume. Then simply wipe away the hydrated absorbent.

Cat.No.	Size	EUR
44403.01	500 g	97,00

■ Spectra/Por® Dialysis Reservoir with SWIRL® stir bar, 600 ml

HS 39269097

Polystyrene cylindrical reservoir. The included stir bar creates a vortex that draws the dialysis tubing or the Float-A-Lyzer® devices into the centre, maximizing dialysis efficiency.

For Float-A-Lyzer® devices up to 1 ml and dialysis tubes with flat widths up to 16 mm.

Cat.No.	Size	EUR
44401.01	1 piece	63,00

■ Spectra/Por® Dialysis Reservoir with SWIRL® stir bar, 1800 ml

HS 39269097

Polystyrene cylindrical reservoir. The included stir bar creates a vortex that draws the dialysis tubing or the Float-A-Lyzer® devices into the centre, maximizing dialysis efficiency.

For any size of Float-A-Lyzer® devices and dialysis tubes with flat widths up to 80 mm.

Cat.No.	Size	EUR
44402.01	1 piece	73,00

■ Spectra/Por® Dialysis Kit

HS 38220000

Ideal for dialysis applications in which there is either a range of solute sizes or the solute size is unknown.

Contains 0.5 m each of Spectra/Por® Biotech dialysis tubing (regenerated cellulose) of MWCO 3.5 - 5 kD, 8 - 10 kD, and 20 kD, 3 Standard, 3 Weighted and 1 Magnetic Weighted Closure and 1 Spectra/Por® Dialysis Reservoir (2400 ml) with stir bar.

Cat.No.	Size	EUR
44398.01	1 kit	270,00

■ Spectra/Por® Openers

HS 39174000

The strong adhesive of the Openers grips the dry tubing and allows you to easily pull the membrane sides apart for sample loading.

Cat.No.	Size	EUR
44399.01	100 pieces	100,00

Products for Microscopy:
see special chapter at p. 359

Electrophoresis

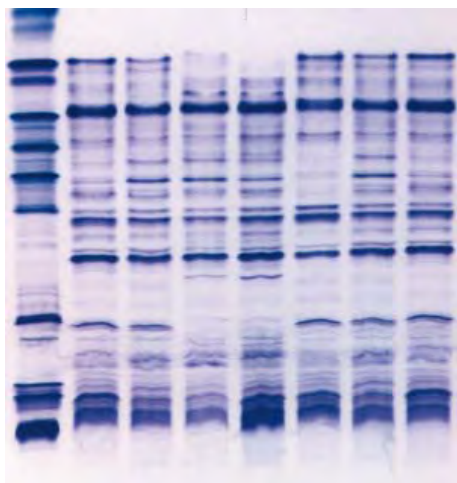
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Isoelectric Focusing

Isoelectric Focusing (IEF) can be described as an ingenious process for simultaneous concentration and separation of proteins.

IEF employs a pH gradient formed by small amphoteric molecules (called ampholytes) to resolve proteins according to their different pI values (pI = isoelectric point). IEF is an end point method - when the electrophoretic run is completed proteins will appear as separate, sharp zones, in the order of their isoelectric points.



For IEF, SERVA offers a comprehensive product line:

- SERVALYT™ Carrier Ampholytes
- SERVALYT™ PRECOTES/PreNets™ Precast Gels & Kits
- FocusGels Precast Horizontal Gels
- SERVAGel™ IEF Vertical Gels
- Protein Standards
- Buffers and Accessories
- Equipment



Precast Horizontal Gels

SERVA offers a broad range of precast polyacrylamide gels for horizontal isoelectric focusing. The polyacrylamide layer is either bound to a sturdy support GEL-FIX™, an inert polyester film, activated to bind irreversibly to polyacrylamide, or to NetFix™, an inert polyester fabric, activated to bind polyacrylamide but open to both sides of the gel.

NetFix™ is particularly useful when blotting is applied after electrophoresis as it stabilizes the gel but leaves both gel surfaces open, suitable for transfer.

The surface of each precast gel is protected with a thin cover sheet (GEL-FIX™ for covers) against damage and drying out. SERVA precast gels are separately packed, each individually sealed in an aluthen bag which adds to longevity. They are ready-to-use and offered with thin and ultrathin gel layers.

SERVALYT™ PRECOTES™ with 0.15 mm or 0.3 mm gel thickness are recommended when high resolution and fast separation is required and low amount of sample material is available.

Samples are loaded by use of an applicator strip (made from silicon). Various strips differing in number and shape of slots are available from SERVA. The applicator strip can be positioned at any location on the gel - samples can be loaded at optimum of solubility, anodically to mid-position to cathodically. Usually, an IEF run is completed within 3 hours (depending on gel size).

FocusGels with 0.65 mm gel thickness are less sensitive to "salt effects" than SERVALYT™ PRECOTES™. Due to the high buffering capacity the FocusGel is the gel of choice for all separations of salt carrying samples like serum, CSF, cell and tissue extracts. No electrode solutions and electrode stripes are used; the electrodes are placed directly on the gel surface. FocusGels are available with or without sample slots.

Staining is performed in the same way as one is used to from handling other gels, precast or self-cast. There is no need to change the staining procedure or protocol. Gels can be air-dried over night at room temperature.

Overview: SERVA Precast Gels for IEF:

- **SERVALYT™ PRECOTES™:**
General purpose gels, ready-to-use, selected pH ranges and formats
- **SERVALYT™ PRECOTES™ Kits:**
Gels optimized for special applications (CSF)
- **SERVALYT™ PreNets™**
Ready-to-use gels with NetFix™, ideally suited for subsequent blotting transfer
- **Blank PRECOTES™ /PreNets™:**
Multifunctional precast gels for any pH range, to be equilibrated in ampholyte of choice, also suited to IEF in the presence of urea. Blank PreNets™ are ideally suited for subsequent blotting transfer
- **FocusGels:**
Non-toxic gels with high buffering capacity, ideally suited for salt carrying samples e.g. CSF, ready-to-use, selected pH ranges and formats, available with slots

SERVALYT™ PRECOTES™

SERVALYT™ PRECOTES™ boxes contain only the gels. Wicks, electrode buffers and applicator strips (necessary to run the gels) have to be ordered separately.



SERVALYT™ PRECOTES™: Overview

PAG Layer	Size	Quantity	Cat. No.
SERVALYT™ PRECOTES™ Wide Range pH 3 - 10			
150 µm	125 x 125 mm	5 pieces	42965.03
150 µm	245 x 125 mm	5 pieces	42967.02
300 µm	125 x 125 mm	5 pieces	42866.02
300 µm	245 x 125 mm	5 pieces	42867.02
SERVALYT™ PRECOTES™ Range pH 3 - 6			
150 µm	125 x 125 mm	5 pieces	42974.02
150 µm	245 x 125 mm	5 pieces	42919.03
300 µm	125 x 125 mm	5 pieces	42874.02
SERVALYT™ PRECOTES™ Range pH 4 - 6			
300 µm	125 x 125 mm	5 pieces	42875.02
SERVALYT™ PRECOTES™ Range pH 6 - 9			
150 µm	125 x 125 mm	5 pieces	42978.02
300 µm	125 x 125 mm	5 pieces	42878.02

For other pH gradients (e.g. 4-6, 4-7, 5-7) please inquire.

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

(Precast Gels for IEF; PRECOTES™)

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

SERVALYT™ PRECOTES™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42965.03	5 gels	166,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42967.02	5 gels	229,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42866.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Wide Range pH 3-10

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42867.02	5 gels	229,00

■ SERVALYT™ PRECOTES™ Range pH 3-6

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42974.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 3-6

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 245 x 125 mm.

Cat.No.	Size	EUR
42919.03	5 gels	229,00

■ SERVALYT™ PRECOTES™ Range pH 3-6

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42874.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 4-6

DANGER
H340-H350-H361F ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42875.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 6-9

DANGER
H340-H350-H361F ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 150 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42978.02	5 gels	166,00

■ SERVALYT™ PRECOTES™ Range pH 6-9

DANGER
H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

PAG Layer 300 µm; size 125 x 125 mm.

Cat.No.	Size	EUR
42878.02	5 gels	166,00

SERVALYT™ PRECOTES™ Kits

SERVALYT™ PRECOTES™ Kits are made for special applications:

- Easy-to-start, ready-to-use
- Large format (245 x 125 mm) for high throughput of samples in routine analysis
- Standard format (125 x 125 mm) for screening analysis
- Optimized particularly for the application
- Detailed working instructions, reproducible results

**IEF Starter Kit**

DANGER
H314-H334-H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

The kit contains:
3 SERVALYT™ PRECOTES™ 125 x 125 mm with PAG layer 300 µm

Electrode wicks	20
Applicator strips	1
Electrode buffer solutions	2 x 10 ml
Heat exchange liquid	10 ml
SERVA Blue W	100 mg
SERVA Violet 17	100 mg
IEF marker 3-10 SERVA Liquid Mix 60 µl	

Cat.No.	Size	EUR
39060.01	1 kit	165,00

SERVALYT™ PRECOTES™ CSF Kit

DANGER



H340-H350 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

For cerebrospinal fluid (CSF) analysis by isoelectric focusing.

The kit contains:

- 5 SERVALYT™ PRECOTES™ CSF gels 245 x 125 mm, 300 µm
- Anode and cathode buffer solutions
- Applicator strips and electrode wicks
- Optimized protocol for silver staining

SERVALYT™ PRECOTES™ is a trademark of SERVA.



Cat.No.	Size	EUR
42800.01	1 kit	299,00

SERVALYT™ PRECOTES™ CSF Kit

HS 38220000

Storage temperature +2 °C to +8 °C

For cerebrospinal fluid (CSF) analysis by isoelectric focusing.

The kit contains:

- 5 SERVALYT™ PRECOTES™ CSF gels; size 125 x 125 mm, 300 µm
- Anode and cathode buffer solutions
- Applicator strips and electrode wicks
- Optimized protocol for silver staining

Cat.No.	Size	EUR
42801.01	1 kit	197,00

SERVALYT™ PreNets™

IEF separates proteins in their native state. When transferred onto membranes, proteins feature full antigenicity and can be detected by specific antibodies. Moreover, the blotted proteins may be subjected to enzymatic reactions to further assess functional pathways. Blotting of gels bound to support film cannot be performed without removal of the film backing (film is not permeable in electroblotting). But IEF gels are very thin and carry the risk to tear when being handled in blotting procedures.

SERVA developed the SERVALYT™ PreNets™ particularly for use in blotting experiments and assays which assess enzymatic activity of gel separated proteins. They are precast gels, used in the same manner as the related SERVALYT™ PRECOTES™ except that the gel, supported by the fabric, is permeable for electrotransfer. The gel layer is not covalently bound to the backing and is lifted off easily.

**SERVALYT™ PreNets™ pH 3-10**

HS 38220000

Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.

SERVALYT™ PreNets™ for subsequent blotting. They are precast gels, used in the same manner as the related SERVALYT™ PRECOTES™ except that the gel, supported by a NetFix™ polyester fabric, is permeable for electrotransfer. The gel layer is not covalently bound to the backing and is lifted off easily.

SERVALYT™ PreNets™ is a trademark of SERVA.

Cat.No.	Size	EUR
42738.02	5 gels	208,00

SERVALYT™ PreNets™ pH 4-6

HS 38220000

Storage temperature +2 °C to +8 °C

PAG layer 300 µm, size: 125 x 125 mm.

Description see cat. no. 42738 (above).

Cat.No.	Size	EUR
42748.02	5 gels	208,00

Blank PRECOTES™/PreNets™

Blank PRECOTES™ and Blank PreNets™ were developed by SERVA to provide a versatile solution to perform Isoelectric Focusing (IEF) of any pH range. Blank PRECOTES™ are thin (0.3 mm) polyacrylamide gels cast onto GEL-FIX™ support film that contain only BisTris buffer pH 6.5; Blank PreNets™ are cast onto Net-Fix™ to facilitate blotting.

They are given the prefix »blank« to indicate that they are (almost) »empty« gels with a matrix that can be adapted to anything the user wants it to be.

To perform IEF, Blank PRECOTES™/PreNets™ are equilibrated in the ampholyte mixture of choice for 30 minutes prior to electrophoresis. Resolution is at least as good, sometimes found even superior, compared to the results obtained with gels of »cast-in« ampholytes.

Benefits are:

- can be adapted to any pH-range desired by rapid equilibration
- suited for IEF in the basic pH-range
- suited for IEF in the presence of urea
- excellent resolution
- long shelf life
- blotting gels available

Blank PRECOTES™ PAG layer 300 µm, size 125 x 125 mm



DANGER
H340-H350-H361F ♦ HS 38220000
Storage temperature +2 °C to +8 °C

Blank PRECOTES™ were developed by SERVA to provide a versatile solution to perform Isoelectric Focusing (IEF) of any pH range. Blank PRECOTES™ are thin (0.3 mm) polyacrylamide gels cast onto GEL-FIX™ support film that contain only BisTris buffer pH 6.5. They are given the prefix »blank« to indicate that they are (almost) »empty« gels with a matrix that can be adapted to anything the user wants it to be.

To perform IEF, Blank PRECOTES™ are equilibrated in the ampholyte mixture of choice for 30 minutes prior to electrophoresis. Resolution is at least as good, sometimes found even superior, compared to the results obtained with gels of »cast-in« ampholytes.

Shelf-life of Blank PRECOTES is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PRECOTES™ is a trademark of SERVA.

Cat.No.	Size	EUR
42759.01	5 gels	97,00

Blank PRECOTES™ PAG layer 300 µm, size 245 x 125 mm



DANGER
H340-H350-H361F ♦ HS 38220000
Storage temperature +2 °C to +8 °C

Cat.No.	Size	EUR
42710.01	5 gels	139,00

Blank PreNets™ PAG layer 300 µm, size 125 x 125 mm

HS 38220000

Storage temperature +2 °C to +8 °C

PreNets™ gels are prepared with Net-Fix™ cast into the polyacrylamide matrix adding mechanical stability to the thin gel layer. Net-Fix™ is an inert polyester net activated to bind polyacrylamide. After electrophoresis, the gel is easily lifted from its film support (non-binding) and transferred to the membrane of choice, no tearing or damage will occur when handling the thin layer due to the stabilizing effect of the built-in Net-Fix™.

Both methods, semi-dry transfer and tank transfer, are applicable. Transfer using a semi-dry blotter is usually completed within 30 minutes. Handling of PreNets™ is identical in all steps to operating PRECOTES™, including staining and drying.

Shelf-life of Blank PreNets™ is at least 12 months, either as blank gels (without ampholyte) or in the equilibrated form (with ampholyte, without urea).

PreNets™ is a trademark of SERVA.

Cat.No.	Size	EUR
42758.01	5 gels	107,00

Products for Sample Preparation:
see special chapter at p. 123

FocusGels

FocusGels are available with different pH gradients, with or without sample slots. FocusGels are 0.65 mm thin polyacrylamide gels with T = 5 % gel concentration and C = 3 % crosslinking for isoelectric focusing, which have been polymerized under special conditions, in order to obtain an optimal matrix suitable for IEF.

Catalysts as well as other non toxic and non polymerized compounds have been removed from the matrix. Therefore, FocusGels are not toxic.

The gels contain a special carrier ampholyte cocktail to achieve an optimal pH gradient.

No electrode solutions and electrode stripes are used; the electrodes are placed directly on the gel surface. FocusGels 24S contain 24 pre-polymerized sample wells for easy application of up to 25 µl protein solution close to the anodal or cathodal side. The other FocusGel types do not contain sample wells. Here samples can be applied employing various sample applicators.

FocusGels

Size: 250 x 115 x 0.65 mm

Type	Slots	Quantity	Cat. No.
pH 3-10	–	5 gels	43327.01
	24 (for 25 µl)	5 gels	43335.01
pH 3 - 7	–	5 gels	43328.01
	24 (for 25 µl)	5 gels	43387.01
pH 4 - 5	24 (for 25 µl)	5 gels	43332.01
pH 4 - 6	24 (for 25 µl)	5 gels	43334.01
pH 6 - 11	24 (for 25 µl)	5 gels	43329.01
	40 (for 12 µl)	5 gels	43333.01
pH 6 - 24 (HEM)	24 (for 25 µl)	5 gels	43330.01

FocusGel 2-6 Size: 250 x 115 x 0.44 mm

HS 38220000

0.44 mm thin polyacrylamide gels with T = 5 % gel concentration and C = 3 % crosslinking for isoelectric focusing, which have been polymerized under special conditions to obtain an optimal matrix suitable for IEF. Catalysts and acrylamid monomers substances have been removed. The gels contain specific SERVALYT™ mixtures to achieve an optimal pH gradient for this acidic region and to enable SERVA Violet 17 staining without background. This staining is particularly useful for the visualisation of hydrophobic proteins.

5 ready-to-use gels for IEF, pH 2-6.

Cat.No.	Size	EUR
43331.01	5 gels	inquire

FocusGel 3-10 Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10.

Cat.No.	Size	EUR
43327.01	5 gels	349,00

FocusGel 3-10 24S Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-10, 24 slots for 25 µl.

Cat.No.	Size	EUR
43335.01	5 gels	349,00

FocusGel 3-7 Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 3-7.

Cat.No.	Size	EUR
43328.01	5 gels	349,00

FocusGel 3-7 24S Size: 250 x 115 x 0.65 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use gels for IEF, pH 3-7, 24 slots for 5 µl.

Cat.No.	Size	EUR
43387.01	5 gels	inquire

FocusGel 4-5 24S Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-5, 24 slots for 25 µl.

Cat.No.	Size	EUR
43332.01	5 gels	inquire

FocusGel 4-6 24S Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 4-6, 24 slots for 25 µl.

Cat.No.	Size	EUR
43334.01	5 gels	inquire

FocusGel 6-11 24S Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 24 slots for 25 µl.

Cat.No.	Size	EUR
43329.01	5 gels	349,00

FocusGel 6-11 40S Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-11, 40 slots for 12 µl.

Cat.No.	Size	EUR
43333.01	5 gels	349,00

FocusGel 6-9 24S HEM Size: 250 x 115 x 0.65 mm

HS 38220000

Ready-to-use gels for IEF, pH 6-9, 24 slots for 25 µl.

Cat.No.	Size	EUR
43330.01	5 gels	inquire

Precast Vertical Gels

SERVAGel™ precast vertical gels for mini slab gel electrophoresis are ready-to-use, prepared from acrylamide-bis and cast into unbreakable plastic cassettes. The format of 10 x 10 cm is compatible with many slab gel tank systems. SERVAGel™ is shipped in a vacuum sealed bag.

The SERVAGel™ IEF gels (cat. nos. 43240, 43242) are suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins. SERVAGel™ is a trademark of SERVA.

■ SERVAGel™ IEF 3-10 precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size	EUR
43240.01	10 gels	190,00
43240.03	2 gels	43,00

■ SERVAGel™ IEF 3-10 precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ IEF 3 - 10 is suitable for isoelectric focusing (IEF) in a pH range of 3 to 8.5 (Standard IEF) and 5.5 to 11 (non-equilibrium pH gradient electrophoresis, NEPHGE). For NEPHGE you change cathode and anode buffer as well as polarity of the electrophoresis chamber. In contrast to standard IEF, samples are loaded anodic, which enables an optimal separation of basic to very basic proteins.

Cat.No.	Size	EUR
43242.01	10 gels	190,00
43242.03	2 gels	43,00

■ SERVAGel™ IEF Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains:

4 SERVAGel™ IEF precast gels of your choice (cat. no. 43240 or 43242)

SERVA IEF anode buffer (1x, powder for 2.5 l buffer, cat. no. 42539)

SERVA IEF cathode buffer 3-10 (10x, powder for 100 ml buffer, cat. no. 42539)

IEF sample buffer (2x 1 ml, cat. no. 42537)

SERVA Violet 17 (0.5 g, cat. no. 35072)

SERVA IEF Marker 3-10, Liquid Mix (30 µl, cat. no. 39212)

Cat.No.	Size	EUR
43205.01	1 kit	96,00

SERVALYT™ Carrier Ampholytes

SERVALYT™ Carrier Ampholytes are low molecular weight molecules of zwitterionic character.

They are a mixture of synthetically derived species of average molecular weight distribution of 400 to 1000 dalton and comprise a multitude of varying pI-values.

In agarose and polyacrylamide gels containing ampholytes, a linear pH gradient will be built up when an electric field is applied - the ampholyte molecules »carry« a net charge and thus migrate in the electric field between the electrodes as long as they will reach the position of corresponding pI. They will stop moving then and form small plateaus (stationary stacks).

Benefits are:

- high resolution due to multimeric composition
- fast staining and destaining times
- clear background associated with very low unspecific binding of dyes and stains
- high solubility in trichloroacetic acid (fast removal of ampholytes during fixation)
- virtually no interaction with metal ions



SERVALYT™ Carrier Ampholytes: Overview

pH Range	Cat. No.	Quantity	Cat. No.	Quantity
2-4	42902.01	10 ml	42902.02	25 ml
2-9 Seed Mix	42935.01 42935.03	10 ml 100 ml	42935.02	25 ml
2-11	42900.01	10 ml	42900.02	25 ml
3-4	42922.01	10 ml	42922.02	25 ml
3-5	42903.01 42903.04	10 ml 2 ml	42903.02	25 ml
3-6	42944.01 42944.04	10 ml 2 ml	42944.02	25 ml
3-7	42945.01	10 ml	42945.02	25 ml
3-10	42940.01	10 ml	42940.02	25 ml
3-10 Iso-Dalt *	42951.01 42951.04	10 ml 2 ml	42951.02	25 ml
4-5	42923.01	10 ml	42923.02	25 ml
4-6	42904.01 42904.04	10 ml 2 ml	42904.02	25 ml
4-7	42948.01 42948.04	10 ml 2 ml	42948.02	25 ml
4-9 T **	42910.01 42910.03	10 ml 100 ml	42910.02	25 ml
5-6	42924.01	10 ml	42924.02	25 ml
5-7	42905.01 42905.04	10 ml 2 ml	42905.02	25 ml
5-7 PGM	42936.01	10 ml	42936.02	25 ml
5-8	42949.01 42949.04	10 ml 2 ml	42949.02	25 ml
5-9	42950.01	10 ml	42950.02	25 ml
6-7	42925.01	10 ml	42925.02	25 ml
6-8	42906.01 42906.04	10 ml 2 ml	42906.02	25 ml
6-9	42913.01 42913.04	10 ml 2 ml	42913.02	25 ml
7-9	42907.01 42907.04	10 ml 2 ml	42907.02	25 ml
9-11	42909.01	10 ml	42909.02	25 ml

* Iso-Dalt quality; special 2D-grade to be used in 2D-electrophoresis

** Technical grade quality for preparative work

■ SERVALYT™ 2-4

(HS 38220000)

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

SERVALYT™ is a trademark of SERVA.

Cat.No.	Size	EUR
42902.01	10 ml	99,00
42902.02	25 ml	205,00

■ SERVALYT™ 2-9 Seed-Mix

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special quality for seed analysis by IEF.

Cat.No.	Size	EUR
42935.01	10 ml	99,00
42935.02	25 ml	205,00
42935.03	100 ml	625,00

■ SERVALYT™ 2-11

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42900.01	10 ml	99,00
42900.02	25 ml	205,00

■ SERVALYT™ 3-4

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42922.01	10 ml	124,00
42922.02	25 ml	236,00

■ SERVALYT™ 3-5

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42903.01	10 ml	99,00
42903.02	25 ml	205,00
42903.04	2 ml	35,00

■ SERVALYT™ 3-6

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42944.01	10 ml	99,00
42944.02	25 ml	205,00
42944.04	2 ml	35,00

■ SERVALYT™ 3-7

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42945.01	10 ml	99,00
42945.02	25 ml	205,00

SERVALYT™ 3-10

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42940.01	10 ml	99,00
42940.02	25 ml	205,00
42940.04	2 ml	35,00

SERVALYT™ 3-10 Iso-Dalt, for 2D-GE

HS 38220000

Storage temperature +2 °C to +8 °C

Iso-Dalt quality; special 2D-grade to be used in 2D-electrophoresis.

Cat.No.	Size	EUR
42951.01	10 ml	124,00
42951.02	25 ml	236,00
42951.04	2 ml	35,00

SERVALYT™ 4-5

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42923.01	10 ml	124,00
42923.02	25 ml	236,00

SERVALYT™ 4-6

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42904.01	10 ml	99,00
42904.02	25 ml	205,00
42904.04	2 ml	35,00

SERVALYT™ 4-7

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42948.01	10 ml	99,00
42948.02	25 ml	205,00
42948.04	2 ml	35,00

SERVALYT™ 4-9 T

HS 38220000

Storage temperature +2 °C to +8 °C

Technical grade quality for preparative work. Formation of solid particle (quart. ammonium salts) can be found over time of storage at low temperature. This will not affect the separation as precipitate will dissolve upon dilution (working solution) or warming up to room temperature.

Cat.No.	Size	EUR
42910.01	10 ml	54,00
42910.02	25 ml	106,00
42910.03	100 ml	389,00

SERVALYT™ 5-6

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42924.01	10 ml	124,00
42924.02	25 ml	236,00

SERVALYT™ 5-7

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42905.01	10 ml	99,00
42905.02	25 ml	205,00
42905.04	2 ml	35,00

SERVALYT™ 5-7 PGM

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Special type for phosphoglucomutase subtyping by IEF.

Cat.No.	Size	EUR
42936.01	10 ml	124,00
42936.02	25 ml	236,00

SERVALYT™ 5-8

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42949.01	10 ml	99,00
42949.02	25 ml	205,00
42949.04	2 ml	35,00

SERVALYT™ 5-9

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42950.01	10 ml	99,00
42950.02	25 ml	205,00

SERVALYT™ 6-7

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42925.01	10 ml	124,00
42925.02	25 ml	236,00

SERVALYT™ 6-8

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42906.01	10 ml	99,00
42906.02	25 ml	205,00
42906.04	2 ml	35,00

SERVALYT™ 6-9

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42913.01	10 ml	99,00
42913.02	25 ml	205,00
42913.04	2 ml	35,00

■ **SERVALYT™ 7-9**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42907.01	10 ml	99,00
42907.02	25 ml	205,00
42907.04	2 ml	35,00

■ **SERVALYT™ 9-11**

HS 38220000

Storage temperature +2 °C to +8 °C

SERVALYT™ Carrier Ampholytes (40 % w/v in water). Standard quality (analytical grade) for general use in IEF.

Cat.No.	Size	EUR
42909.01	10 ml	99,00
42909.02	25 ml	205,00

Protein Standards for IEF

Due to its high resolving power while retaining the native state, IEF is preferably used for the characterization of complex protein mixtures, particularly, if their components are almost indistinguishable, for example the isoforms of certain enzymes. Here, using »ultrathin« slab gels (0.5 mm or thinner) extremely high resolution can be obtained.

In routine analysis, precast gels with carrier ampholytes or with immobilized pH-gradient are available to save time and effort and to provide reproducible, reliable results.

To determine the isoelectric points of unknown proteins the pH of focused bands may be measured on the gel using a surface electrode. Quite common is the pI-determination via coelectrophoresis of known protein marker mixtures. By simply comparing the position of unknown protein bands to the position of known marker proteins the pI-values can be interpolated quite accurately.

Benefits:

- ready-to-use protein markers for isoelectric focusing
- one standard applicable to all IEF gels (vertical/horizontal)
- purified protein components, salt-free
- 13 isoforms featuring characteristic patterns
- for determination of pI of unknown protein samples
- for monitoring the separation performance of IEF gels

■ **IEF Marker 3-10, Liquid Mix**

HS 38220000

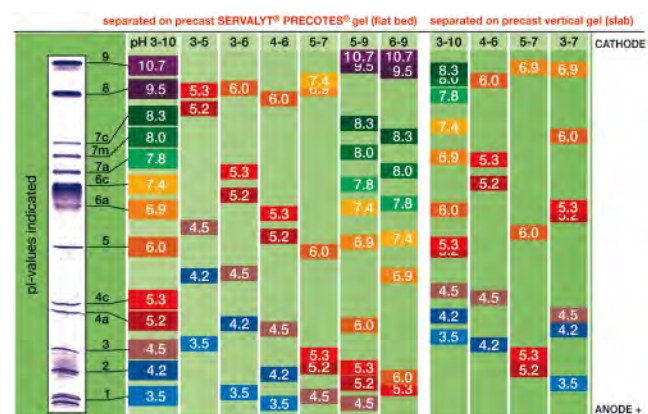
Storage temperature -15 °C to -25 °C

Ready-to-use protein marker for isoelectric focusing.

Contains 9 proteins pI 3.5 to 10.7 (13 isoforms).

Buffer composition:

0.01 % bromophenol blue (Na Salt), 0.01 % methyl red (Na Salt), 10 % glycerol.



Amyloglucosidase
Glucose oxidase
Trypsin inhibitor
β-Lactoglobulin
Carboanhydrase
Myoglobin horse
Lentil lectin
Ribonuclease A
Cytochrome C

pI 3.5
pI 4.2
pI 4.5
pI 5.15/5.3
pI 6.0
pI 6.9/7.35
pI 7.75/8.0/8.3
pI 9.45
pI 10.65

Cat.No.	Size	EUR
39212.01	500 µl	99,00

Protein test mixture for pI-determination, pH 3-10



DANGER
H334-H341 ♦ WGK 1 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

pI-marker proteins for pI-determination by isoelectric focusing (IEF).
Reconstitute dry powder with 1 ml water (concentration: 10 mg/ml).

Amyloglucosidase	pI 3.5
Glucose oxidase	pI 4.2
Trypsin inhibitor	pI 4.5
β-Lactoglobulin	pI 5.15/5.3
Myoglobin horse	pI 6.9/7.35
Lentil lectin	pI 7.75/8.0/8.3
Ribonuclease A	pI 9.45
Cytochrome C	pI 10.65
Carboanhydrase	pI 6.0

Cat.No.	Size	EUR
39211.01	10 mg	39,00

Accessories for IEF

Adhesive tape

HS 39269097

33 m x 9 mm x 0.15 mm. Especially suitable as spacer in the preparation of thin layer gels using the flap technique.

Cat.No.	Size	EUR
42927.01	1 piece	13,00

Anode fluid 3 for IEF

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.17 g L-aspartic acid and 0.18 g L-glutamic acid in 50 ml water.
Recommended for general use with SERVALYT™ PRECOTES™

Cat.No.	Size	EUR
42984.03	50 ml	12,50

Applicator strips 2 x 3.5

HS 39269097

19 slots, 100 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 100 x 6 x 1 mm, 19 sample slots: 2 x 3.5 mm, distance of slots: 3 mm, sample volume 5 - 10 µl.

Cat.No.	Size	EUR
42914.01	6 pieces	25,00

Applicator strips 3.5 x 2

HS 39269097

15 slots, 100 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 100 x 6 x 1 mm, 15 sample slots: 3.5 x 2 mm, distance of slots: 3 mm, sample volume 5 - 10 µl.

Cat.No.	Size	EUR
42915.01	6 pieces	25,00

Applicator Strips 3.5 x 2

HS 39269097

43 slots, 240 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 240 x 6 x 1 mm, 43 sample slots: 3.5 mm x 2 mm, distance of slots: 2 mm, sample volume 5 - 10 µl.

Cat.No.	Size	EUR
42899.01	3 pieces	29,00

Applicator strips 7 x 1

HS 39269097

24 slots, 260 mm long.

For sample application using flat bed techniques with gel layers of up to 0.5 mm thickness. Silicone rubber, length 260 x 6 x 1 mm, 24 sample slots: 7 x 1 mm, distance of slots: 3 mm, sample volume 10 - 15 µl.

Cat.No.	Size	EUR
42989.01	3 pieces	20,50

Applicator strips kit

HS 39269097

Contains 1 each of cat. nos. 42899, 42989, 42914, 42915

Cat.No.	Size	EUR
42937.02	1 kit	30,50

Bayol F research grade

(Paraffin oil, low viscosity; Bayol 35)

HS 27101985

Cat.No.	Size	EUR
14500.01	100 ml	13,00
14500.02	1 L	50,00

BlueSlick™



DANGER
H225-H319-H336 ♦ MAK/TRK 500 mg/m³; 200 ml/m³ for isopropanol ♦ GGVSE/ADR 3 II UN1993 ♦ IATA 3 II UN1993
♦ WGK 1 ♦ HS 38220000

Non-toxic BlueSlick™ is the alternative to silane-containing products and is non-irritant to eyes. It can be handled outside of a fume-hood. Suitable to all applications in electrophoresis (DNA sequencing, SDS PAGE, IEF PAGE). It does not affect the separation.

Supplied in a safety spray bottle made from PE, free of propellant (CFC). One spray dose dispenses a quantity of 0.7 ml BlueSlick™ reagent. BlueSlick™ coating will last for 3 to 4 electrophoresis applications.

Ready-to-use reagent for treatment of glass plates; non-toxic, prevents adhesion of gels to glass.



BlueSlick™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42500.01	250 ml	78,00

Cathode fluid 10 for IEF



DANGER
H314-H317-H334 ♦ GGVSE/ADR 8 III UN3267 ♦
IATA 8 III UN3267 ♦ WGK 2 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.22 g L-arginine base, 0.18 g L-lysine base, 6.0 ml ethylene diamine in 50 ml water. Recommended for general use with SERVALYT™ PRECOTES™.

Cat.No.	Size	EUR
42986.03	50 ml	12,50

■ Clamps

HS 90330000

For thin layer techniques, 6 cm wide. Special bulldog-type with stoppers to prevent bending of clamped glass plates.

Cat.No.	Size	EUR
42921.01	12 pieces	71,00

■ Cooling Contact Fluid

HS 90272000

Storage temperature +2 °C to +8 °C

Cooling fluid specially formulated for use in horizontal electrophoresis. Sufficient for running 10 (50 ml) or 30 (150 ml) large format gels or 25 (50 ml) or 75 (150 ml) small format gels.

Cat.No.	Size	EUR
43371.01	50 ml	29,00
43371.02	3 x 50 ml	57,00

■ Electrode wicks standard size

HS 48232000

Filter cardboard, 120 x 6 x 1 mm.

Cat.No.	Size	EUR
42988.01	100 pieces	29,00

■ Electrode wicks long size

HS 48232000

Filter cardboard, 240 x 6 x 1 mm.

Cat.No.	Size	EUR
42987.03	100 pieces	29,00

■ Electrode wicks extra size

HS 48232000

Filter cardboard, 300 x 6 x 1 mm.

Cat.No.	Size	EUR
42972.03	100 pieces	29,00

■ Gaskets 0.5 264 x 126 mm

HS 39269097

Silicone, U-shaped, 0.5 mm thick, for cuvette techniques.

Cat.No.	Size	EUR
42929.01	6 pieces	60,00

■ Gaskets 1.0 264 x 126 mm

HS 39269097

Silicone, U-shaped, 1.0 mm thick, for cuvette techniques.

Cat.No.	Size	EUR
42930.01	6 pieces	70,00

■ Glass Plates

HS 70031990

Supports for cover. Size: 245 x 128 x 3 mm.

Cat.No.	Size	EUR
42953.01	4 pieces	41,00

■ Glass Plates

HS 70031990

Supports for gel sheets. Size: 265 x 128 x 3 mm.

Cat.No.	Size	EUR
42952.01	4 pieces	37,00

■ IEF Ampholyte Mix

HS 38220000

IEF mix pH 6 - 11 for Phastsystem, suitable for 20 gels (3 mL).

Cat.No.	Size	EUR
43351.01	3 ml	inquire

■ IEF Sample Buffer (2x) sterile filtered

HS 38220000

Storage temperature +2 °C to +8 °C

The SERVA IEF sample buffer is suited to all vertical and horizontal IEF applications and systems. The SERVA IEF sample buffer is supplied as 2x concentrate. It is sterile filtered, beneficial to long shelf life and absence of contaminants. The 2x concentrate is suited to liquid and solid samples. Simply mix the liquid sample 1:1 with the buffer or dissolve a solid sample in the buffer first and dilute with water 1:1. When performing IEF in the presence of urea mix the sample with the buffer and add solid urea or use concentrated urea solution.

The buffer contains 4 % SERVALYT™ 4 - 9 T, 30 % glycerol and 0.005 % phenol red.

Cat.No.	Size	EUR
42537.01	20 ml	21,00

■ IgG Sample Diluter IEF

HS 38220000

Dilution buffer required for CSF analysis in IEF gels.

Cat.No.	Size	EUR
43336.01	100 ml	21,00

■ Kerosene, low odor

CAS [8008-20-6]



DANGER

H304 ♦ EG-Index 649-404-00-4 ♦ EINECS 232-366-4 ♦ WGK 1 ♦ HS 27101925

Suitable as cooling fluid in horizontal electrophoresis.

Cat.No.	Size	EUR
26945.01	1 L	51,00

■ PGM Anode Buffer

HS 38220000

Contains 0.60 g DL-Threonine. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.

Store solution at 4 °C.

Cat.No.	Size	EUR
36370.01	600 mg	23,00

■ PGM Cathode Buffer

HS 38220000

Contains 0.56 g L-Histidine Base. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.

Store solution at 4 °C.

Cat.No.	Size	EUR
24835.01	560 mg	22,50

■ Roller for Electrophoresis

HS 90330000

Cat.No.	Size	EUR
42991.01	1 piece	63,00

■ Sample Application Pieces 10 x 5 mm

HS 48232000

Cat.No.	Size	EUR
42880.01	200 pieces	21,00

■ SERVAGel™ IEF Running Buffer Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Running Buffer Kit for SERVAGel™ IEF 3-10.

Contains:

SERVA IEF anode buffer (1x, powder for 5 l buffer)

SERVA IEF cathode buffer 3-10 (10x, powder for 200 ml buffer)

Cat.No.	Size	EUR
42539.01	1 kit	79,00

■ Spacer Strips

HS 39269097

Silicone, size 265 x 7 x 0.5 mm, for forming the mould in capillary casting techniques.

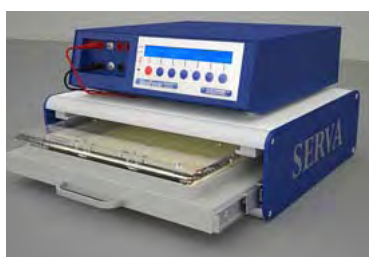
Cat.No.	Size	EUR
42901.01	4 pieces	18,00

Equipment for Flatbed IEF

■ HPE™ BlueHorizon™

HS 90272000

A flatbed system for horizontal applications using precast or self-cast gels. Max. gel format 260 x 205 mm. The electrode lid comes with one pair of platinum electrodes. Three fixed electrode positions (distances of 270 mm, 195 mm and 115 mm) allow the usage of a wide range of different sized gels.



BlueHorizon™ is a trademark of SERVA.

Cat.No.	Size	EUR
HPE-BH	1 piece	3.795,00

■ BluePower™ 3000x4 Power Supply

HS 90272000

BluePower™ 3000x4 is designed for high voltage applications (isoelectric focusing, DNA sequencing) delivering 3000 V, 200 mA and 300 W. Other applications (SDS PAGE, submarine electrophoresis) can be performed as well. 4 x 2 outlets, programmable.



Cat.No.	Size	EUR
BP-3000X4	1 piece	1.795,00

■ Upgrade Kit BH-2C

HS 90272000

Upgrade kit. Contains platinum electrode for BH-2C high performance IEF.

Cat.No.	Size	EUR
BH-2C-UGHP1EF	1 piece	220,00

■ WKL230 Chiller

HS 90278017

Circulation chiller with a working temperature range from -10 °C up to 40 °C at an ambient temperature from 5 °C to 35 °C. Filling volume is 6 L, maximal flow rate is 8 L/min. Dimension is 200 x 350 x 500 mm (W x D x H).

Cat.No.	Size	EUR
WKL230	1 piece	3.450,00

SDS and Native PAGE

SERVAGel/ Precast Vertical Gels

SERVAGel™ precast vertical gels for mini slab gel electrophoresis are ready-to-use, prepared from acrylamide-bis and cast into unbreakable plastic cassettes. The format of 10 x 10 cm is compatible with many slab gel tank systems. SERVAGel™ is shipped in a vacuum sealed bag.

SERVA offers precast gels in cassettes for the vertical electrophoresis of proteins. Using the new SERVAGel™ you can separate your protein samples in the presence (SDS PAGE) or absence (native PAGE) of SDS. The main benefits of the new SERVAGel™ precast gels are the separation performance, the excellent staining/destaining properties and the overall easy handling. Each gel is packed into a single bag.

With the 1 mm thin gels 10 or 12 samples can be analyzed, the separation distance is 7 cm. Poured in stable cassettes with a format of 10 x 10 x 0.7 cm the precast gels will fit perfectly into the BlueVertical™ PRIME™ Mini Slab gel Unit. The cassette gels are compatible with most commercially available slab gel tanks, e. g. the mini vertical systems Mighty Small II (SE 260) and miniVE (SE 300) from Hoefer.

The SERVAGel™:

- Premium resolution, superb band sharpness
- Easy and safe to operate, no leakage
- Short set-up times, gels are ready-to-use
- Unbreakable plastic cassette, recyclable
- Risk to health reduced to minimum (polymerized acrylamide, no toxic monomer)

SERVAGel™ Vertical Gels for 1D- and 2D-SDS PAGE available as:

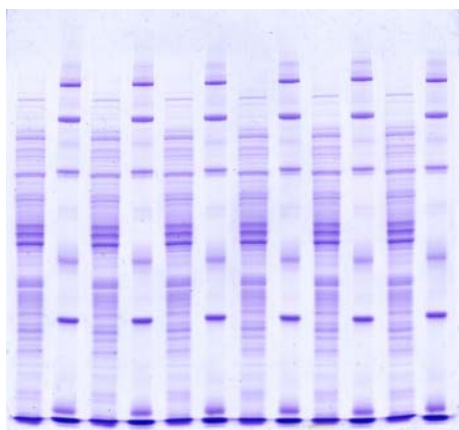
- SERVAGel™ TG PRIME™ Tris/Glycine gel for standard and fast electrophoresis (approx. 35 min) according to Laemmli (Nature, 1970) with long shelf life
- SERVAGel™ Neutral gel pH 7.4 with long shelf life, suitable for different running buffer, e.g. Tris/Glycine or Tris/Tricine, and a separation range from 5 up to 200 kDa
- SERVAGel™ Neutral HSE gel for high speed electrophoresis (20 min) with long shelf life

The SERVAGel™ N gels (cat. nos. 43250, 43251, 43252, 43253) were developed for native gel electrophoresis.

These gels can be operated in Blue and Clear Native buffer systems. Due to their neutral buffer system, the SERVAGel™ N gels feature extended shelf life.

SERVAGel™ is a trademark of SERVA.

PRIME™ stands for Premium Resolution in Minigel Electrophoresis.



SERVAGel™ TG PRiME™ - homogeneous
Vertical mini slab gels in stable plastic cassettes, 10 x 10 cm

Acrylamide Concentration	Sample Wells	Quantity	Cat. No.
8 %	12	2 gels	43260.03
	12	10 gels	43260.01
	10	2 gels	43261.03
	10	10 gels	43261.01
10 %	12	2 gels	43263.03
	12	10 gels	43263.01
	10	2 gels	43264.03
	10	10 gels	43264.01
12 %	12	2 gels	43266.03
	12	10 gels	43266.01
	10	2 gels	43267.03
	10	10 gels	43267.01
14 %	12	2 gels	43269.03
	12	10 gels	43269.01
	10	2 gels	43270.03
	10	10 gels	43270.01

SERVAGel™ TG PRiME™ - gradient
Vertical mini slab gels in stable plastic cassettes, 10 x 10 cm

Acrylamide Concentration	Sample Wells	Quantity	Cat. No.
4 - 12 %	12	2 gels	43273.03
	12	10 gels	43273.01
	10	2 gels	43274.03
	10	10 gels	43274.01
4 - 20 %	12	2 gels	43276.03
	12	10 gels	43276.01
	10	2 gels	43277.03
	10	10 gels	43277.01
8 - 16 %	12	2 gels	43279.03
	12	10 gels	43279.01
	10	2 gels	43280.03
	10	10 gels	43280.01

SERVAGel™ TG PRiME™ - for 2DGE
Vertical mini slab gels in stable plastic cassettes, 10 x 10 cm

Acrylamide Concentration	Sample Wells	Quantity	Cat. No.
12 %	1 x 2D	2 gels	43268.03
	1 x 2D	10 gels	43268.01
14 %	1 x 2D	2 gels	43271.03
	1 x 2D	10 gels	43271.01
8 - 16 %	1 x 2D	2 gels	43281.03
	1 x 2D	10 gels	43281.01

SERVAGel™ Neutral Gels - pH 7.4
Vertical mini slab gels in stable plastic cassettes, 10 x 10 cm

Type	Sample Wells	Quantity	Cat. No.
pH 7.4	12	2 gels	43222.03
	12	10 gels	43222.01
	10	2 gels	43220.03
	10	10 gels	43220.01
pH 7.4 Gradient	12	2 gels	43223.03
	12	10 gels	43223.01
	10	2 gels	43221.03
	10	10 gels	43221.01
pH 7.4 HSE	12	2 gels	43245.03
	12	10 gels	43245.01
	10	2 gels	43246.03
	10	10 gels	43246.01
	1 X 2D	2 gels	43247.03
	1 X 2D	10 gels	43247.01

SERVAGel™ Native Gels - for BN/CN
Vertical mini slab gels in stable plastic cassettes, 10 x 10 cm

Acrylamide Concentration	Sample Wells	Quantity	Cat. No.
3 - 12 %	10	2 gels	43251.03
	10	10 gels	43251.01
	12	2 gels	43250.03
	12	10 gels	43250.01
4 - 16 %	10	2 gels	43252.03
	10	10 gels	43252.01
	12	2 gels	43253.03
	12	10 gels	43253.01

SERVAGel™ TG PRiME™ 8 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size	EUR
43260.01	10 gels	120,00
43260.03	2 gels	27,00

SERVAGel™ TG PRiME™ 8 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 8% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 40 up to 250 kDa.

Cat.No.	Size	EUR
43261.01	10 gels	120,00
43261.03	2 gels	27,00

SERVAGel™ TG PRiME™ 10 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size	EUR
43263.01	10 gels	120,00
43263.03	2 gels	27,00

SERVAGel™ TG PRiME™ 10 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 10% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 200 kDa.

Cat.No.	Size	EUR
43264.01	10 gels	120,00
43264.03	2 gels	27,00

SERVAGel™ TG PRiME™ 12 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size	EUR
43266.01	10 gels	120,00
43266.03	2 gels	27,00

SERVAGel™ TG PRiME™ 12 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ PRiME™ TG 12% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 150 kDa.

Cat.No.	Size	EUR
43267.01	10 gels	120,00
43267.03	2 gels	27,00

SERVAGel™ TG PRiME™ 12 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 12% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43268.01	10 gels	120,00
43268.03	2 gels	27,00

SERVAGel™ TG PRiME™ 14 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size	EUR
43269.01	10 gels	120,00
43269.03	2 gels	27,00

SERVAGel™ TG PRiME™ 14 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 250 V const.). It can be operated under native and denaturing conditions. The separation range is from 10 up to 100 kDa.

Cat.No.	Size	EUR
43270.01	10 gels	120,00
43270.03	2 gels	27,00

SERVAGel™ TG PRiME™ 14 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, the precast gel SERVAGel™ TG PRiME™ 14% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43271.01	10 gels	120,00
43271.03	2 gels	27,00

SERVAGel™ TG PRiME™ 4 - 12 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 12% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size	EUR
43273.01	10 gels	120,00
43273.03	2 gels	27,00

SERVAGel™ TG PRiME™ 4 - 12 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 12% features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 30 up to 300 kDa.

Cat.No.	Size	EUR
43274.01	10 gels	120,00
43274.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 20 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 20 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size	EUR
43276.01	10 gels	120,00
43276.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 4 - 20 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 4 - 20 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 6 up to 200 kDa.

Cat.No.	Size	EUR
43277.01	10 gels	120,00
43277.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size	EUR
43279.01	10 gels	120,00
43279.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system (2 gels, 35 min at 350 V const.). It can be operated under native and denaturing conditions. The separation range is from 20 up to 250 kDa.

Cat.No.	Size	EUR
43280.01	10 gels	120,00
43280.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ 8 - 16 % precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

Obtained from proprietary development, SERVAGel™ TG PRiME™ 8 - 16 % features an extended shelf life and short electrophoresis times by using a standard Tris/Glycine buffer system. The 2D gel has one very planar slot for optimum transfer of proteins in the second dimension. For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Cat.No.	Size	EUR
43281.01	10 gels	120,00
43281.03	2 gels	27,00

■ SERVAGel™ TG PRiME™ Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ TG PRiME™ 12 % precast gels with 12 sample wells (cat. no. 43266), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size	EUR
43206.01	1 kit	65,00

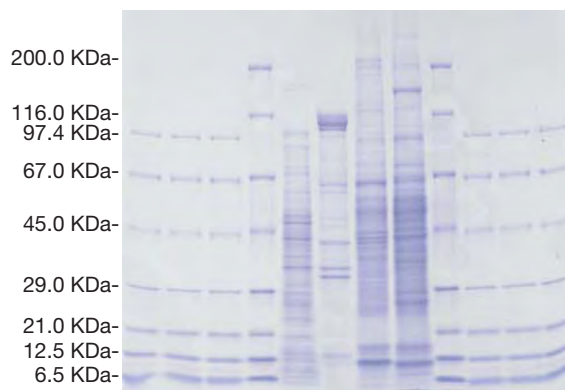
■ SERVAGel™ Neutral pH 7.4 precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-Glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.



Cat.No.	Size	EUR
43220.03	2 gels	27,00
43220.01	10 gels	120,00

■ SERVAGel™ Neutral pH 7.4 precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 can be operated with various buffer systems such as Tris-Glycine, MOPS-Tris, Tris-Tricine. The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral pH 7.4 features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43222.01	10 gels	120,00
43222.03	2 gels	27,00

■ SERVAGel™ Neutral pH 7.4 Gradient

precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43220) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa.

To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size	EUR
43221.01	10 gels	120,00
43221.03	2 gels	27,00

■ SERVAGel™ Neutral pH 7.4 Gradient

precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral pH 7.4 Gradient has all advantages of the SERVAGel™ Neutral pH 7.4 (cat. no. 43222) but shows even better resolution performance for proteins of low molecular weight (from 5 kDa up to approx. 100 kDa), separation range is from 5 kDa up to 200 kDa.

To improve resolution and sharpness of protein bands gels should be run using SERVA Tris-Tricine/SDS running buffer (cat. no. 42552), samples should be dissolved in Tris-Tricine/SDS sample buffer (cat. no. 42551).

Cat.No.	Size	EUR
43223.01	10 gels	120,00
43223.03	2 gels	27,00

SERVAGel™ Neutral HSE precast gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43221). With the standard SDS-Tris-Glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43245.01	10 gels	120,00
43245.03	2 gels	27,00

SERVAGel™ Neutral HSE precast gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient (cat. no. 43223). With the standard SDS-Tris-Glycine buffer system (Laemmli) it can be operated at 400 V, which reduces the electrophoresis time to 20 min.

The separation range is from 6.5 up to 200 kDa.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43246.01	10 gels	120,00
43246.03	2 gels	27,00

SERVAGel™ Neutral HSE, 2D precast gel, 2D well

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ Neutral HSE, 2D well is a specially for High Speed Electrophoresis developed version of the SERVAGel™ Neutral pH 7.4 Gradient. With the standard SDS-Tris-Glycine buffer system (Laemmli) two 2D gels can be operated at 300 V, which reduces the electrophoresis time to 40 min.

For the first dimension IPG strips of 7 cm length can be used. The separation distance is 7 cm.

Obtained from proprietary development, the SERVAGel™ Neutral HSE features extended shelf life due to its neutral buffer system.

Cat.No.	Size	EUR
43247.01	10 gels	120,00
43247.03	2 gels	27,00

SERVAGel™ Neutral HSE Starter Kit 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 4 SERVAGel™ Neutral HSE precast gels with 12 sample wells (cat. no. 43245), 400 ml 10x Laemmli running buffer (cat. no. 42556), 1 ml 2x Tris/Glycine-SDS sample buffer (cat. no. 42527), DTT (cat. no. 20710, 310 mg to be dissolved in 1 ml H₂O) and 50 µl SERVA Unstained SDS PAGE Protein Marker (cat. no. 39215).

Cat.No.	Size	EUR
43207.01	1 kit	65,00

SERVAGel™ N 3-12, Vertical Native Gel 3 - 12 %

precaster gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 3-12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43250.01	10 gels	120,00
43250.03	2 gels	27,00

SERVAGel™ N 3-12, Vertical Native Gel 3 - 12 %

precaster gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 3-12 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43251.01	10 gels	120,00
43251.03	2 gels	27,00

SERVAGel™ N 4-16, Vertical Native Gel 4 - 16 %

precaster gel, 12 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 4-16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43253.01	10 gels	120,00
43253.03	2 gels	27,00

SERVAGel™ N 4-16, Vertical Native Gel 4 - 16 %

precaster gel, 10 sample wells

HS 38220000

Storage temperature +2 °C to +8 °C

The precast gel SERVAGel™ N 4-16 can be operated with the Blue and Clear Native buffer systems. Also included in the SERVAGel™ N Native Starter Kit (cat. no. 43204) containing buffers and reagents for Blue and Clear Native gel electrophoresis.

Cat.No.	Size	EUR
43252.01	10 gels	120,00
43252.03	2 gels	27,00

SERVAGel™ N Native Starter Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Contains:

2 precast gels SERVAGel™ N 3-12, Vertical Native Gels 3-12 % (10 sample wells, cat. no. 43251)

2 precast gels SERVAGel™ N 4-16, Vertical Native Gels 4-16 % (10 sample wells, cat. no. 43253)

250 ml 10x Native Anode Buffer for BN/CN (cat. no. 42535)

250 ml 10x Native Cathode Buffer for BN/CN (cat. no. 42536)

50 µl SERVA Native Marker Liquid Mix for BN/CN (cat. no. 39219)

2 ml Sample Buffer for Blue Native (2x) (cat. no. 42533)

2 ml Sample Buffer for Clear Native (2x) (cat. no. 42534)

5 ml SERVA Blue Solution for BN, 1 % (cat. no. 42538)

Cat.No.	Size	EUR
43204.01	1 kit	65,00

Products for Microscopy:
see special chapter at p. 359

Equipment for Vertical Mini Slab Gels

■ **BlueVertical™ PRiME™** Mini Slab Gel Unit

HS 90272000

The BlueVertical™ PRiME™ is a dual mini tank system with the option to operate one or two precast gels. It accommodates SERVAGel™ TG PRiME™, all other types of SERVAGel™ and all other commercially available precast gels with an outer cassette dimension of 10 x 10 x 0.7 cm. The fixture of the inner core unit has been re-engineered to provide four robust clamps (two on both sides) which fix two precast gel cassettes properly and tightly in their correct position. This ensures that the inner buffer chamber is leak-free separated from the outer buffer compartment.

Separation of proteins by SDS PAGE, native PAGE and IEF can be carried out as well as separation of nucleic acids by denaturing or native PAGE. The outer buffer tank works as a heat sink (passive cooling by buffer), sufficient for most applications mentioned above. You may run two SERVAGel™ TG PRiME™ simultaneously at 300 Volt. The run will be completed in about 35 minutes without warming up the buffer significantly. If additional cooling is required (e. g. for IEF applications), a magnetic stirrer can be applied to help circulation of buffer fluid.

The unit consists of an outer buffer tank and the inner core running unit. Mounting of precast gels does not require any tedious clamping but is a matter of seconds. The outer buffer tank is made from rugged transparent acrylic – watch your gel while running! A safety lid closes the top, giving the unit a very compact and robust design. Little bench space is required. The unit is, of course, in accordance with the European safety guidelines (CE mark). When quality becomes an issue – choose BlueVertical™ PRiME™.



Specifications:	
Inner buffer volume	200 ml
Outer buffer volume	450 ml
Voltage (max)	500 Volt
Current (max)	250 mA
Operating temperature	4 °C - 65 °C
Electrodes	Platinum wire (0.2 mm, 99.99 % pure)
Dimensions	16 x 15.6 x 9.5 cm (WxHxD)
Weight	1.2 kg

Cat.No.	Size	EUR
BV 104	1 piece	695,00

■ **BluePower™ 500x4 Power Supply**

HS 90272000

The allround instrument serving many applications, e.g., SDS PAGE, submarine electrophoresis and blotting. BluePower™ 500x4 features 500 V, 1000 mA and 200 W. The BP-500x4 power supply is particularly advised for operation of up to four vertical slab gel units run at higher voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-500X4	1 piece	1.125,00

SDS Flatbed Gel Kits

SDS PAGE carried out in horizontal orientation using flatbed electrophoresis chambers is a valuable alternative to mostly common vertical PAGE.

The use of precast flatbed gels, as supplied with the SDS Gel Kits, results in lower buffer consumption, easy handling of the gels, most efficient temperature control and superb resolution. The neutral buffer system used for these gels allows a shelf life of 24 months. Samples are applied easily into precast slots. 25 slots (15 µl sample) or 52 slots (6 µl sample) are available. Film-backing can be easily removed for Western Blotting.

SDS PreNets™ Blotting gels are especially developed for easy handling in subsequent blotting steps. The cast-in Net-Fix™ allows direct blotting of gels. Removal of film-backing is not necessary. The gels show excellent separation of proteins from 10 kDa to 200 kDa. Samples are applied with an applicator strip, which is included in the kit.

■ **SDS Gel Kit 10 % 25S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis: 10 % T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43359.01	1 kit	187,00

■ **SDS Gel Kit 10 % 52S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis: 10 %T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43360.01	1 kit	187,00

■ **SDS Gel Kit 15 % 25S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis: 15 %T, 25 slots for 15 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43361.01	1 kit	187,00

■ **SDS Gel Kit 15 % 52S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use kit for SDS electrophoresis: 15 %T, 52 slots for 6 µl, 4 gels + buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43362.01	1 kit	187,00

■ **SDS Gel Kit NF 12.5 % 25S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. 12.5 % T, 25 slots for 15 µl, 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43363.01	1 kit	inquire

■ **SDS Gel Kit NF 15 % 25S** Size: 250 x 125 x 0.45 mm

HS 38220000

Ready-to-use gel kit for 1-dimensional DIGE samples and all other fluorescent visualizations. 15 % T, 25 slots for 15 µL 4 gels + buffer kit, 12 x 26 cm. On non-fluorescent film support for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43364.01	1 kit	inquire

■ SDS PreNets™ Blotting Kit Gel Size 245 x 125 mm

(SERVALYT™ PreNets™; PreNets™)

HS 38220000

Storage temperature +2 °C to +8 °C

The kit contains 5 gels, buffers, wicks, applicator strip and instruction manual.

Cat.No.	Size	EUR
42701.01	1 kit	250,00

■ SDS PreNets™ Blotting Kit Gel Size 125 x 125 mm

(SDS PreNets™ Blotting Kits)

HS 38220000

Storage temperature +2 °C to +8 °C

The kit contains 5 gels, buffers, wicks, applicator strip and instruction manual.

Cat.No.	Size	EUR
42700.01	1 kit	197,00

■ SDS Urine Gel Kit 25S Size: 250 x 125 x 0.45 mm

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use kit for analysis of urine proteins by SDS gel electrophoresis: 25 slots for 15 µl, 4 gels + buffer kit suitable for urine protein analysis; for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43391.01	1 kit	187,00

CleanGel Precast Flatbed Gels

CleanGels are film-backed acrylamide gels for horizontal electrophoresis which are washed and dried after casting.

They feature long shelf life of up to 24 months and can be rehydrated with any buffer of your choice according to your application. Different ready-to-use buffer systems are available from SERVA.

Perform cereal cultivar differentiation or native electrophoresis, separate high molecular weight proteins or even DNA fragments – using the same CleanGel gels but different buffer systems.

Samples are applied easily into precast slots. 25 slots (15 µl sample) or 52 slots (6 µl sample) are available. A small gel format for PhastSystem™ (IEF) 50 x 42 mm is available.

■ CleanGel 15 % 25S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 12.5 %T, 25 slots for 15 µl.

Cat.No.	Size	EUR
43342.01	4 gels	inquire

■ Native Buffer Kit

HS 38220000

Native buffer system for native cathodal electrophoresis of proteins.

Cat.No.	Size	EUR
43352.01	1 kit	80,00

■ CleanGel 10 % 25S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 25 slots for 15 µl.

Cat.No.	Size	EUR
43338.01	4 gels	138,00

■ CleanGel 10 % 52S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 10 %T, 52 slots for 6 µl.

Cat.No.	Size	EUR
43340.01	4 gels	138,00

■ CleanGel 15 % 52S Size: 250 x 125 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

CleanGel 1D SDS gels are 0.43 mm thin polyacrylamide gels covalently bound to a film support which are used in a horizontal system, such as HPE™ Tower, BH-2C or Multiphor II™. The gel size is 25 x 12.5 cm. 4 rehydratable gels, 15 %T, 52 slots for 6 µl.

Cat.No.	Size	EUR
43344.01	4 gels	inquire

■ CleanGel IEF for PhastSystem™ Size: 50 x 42 x 0.43 mm

HS 38220000

Storage temperature -15 °C to -25 °C

20 rehydratable gels, 5 % T.

Cat.No.	Size	EUR
43350.01	20 gels	187,00

■ CSF Analysis Kit for PhastSystem™

HS 38220000

Storage temperature -15 °C to -25 °C

Contains 10 gels and rehydration solutions for CSF analysis on PhastSystem™, format 50 x 42 x 0.43 mm.

Cat.No.	Size	EUR
43393.01	1 kit	265,00

■ Delect Buffer Kit pH 7.3

HS 38220000

Buffer system for DNA electrophoresis and native anodal protein electrophoresis in CleanGels. Contains gel rehydration buffer, anode buffer, cathode buffer, cooling contact fluid and electrode wicks.

Cat.No.	Size	EUR
43355.01	1 kit	80,00

■ DNA Disc Electrophoresis

HS 38220000

Buffer system for native and denaturing DNA electrophoresis in CleanGels. Contains gel rehydration buffer, electrode buffer, electrode wicks, and drying cardboards.

Cat.No.	Size	EUR
43356.01	1 kit	57,00

DNA Fragment Analysis Kit

HS 38220000

Storage temperature -15 °C to -25 °C

Polyacrylamide gel electrophoresis is the optimal separation technique for DNA fragments below 1-kilobase length.

The DNA Fragment Analysis Kit is optimized for SSCP analysis and contains 4 CleanGels 15 % with 52 sample slots, rehydration buffer, electrode buffer, buffer wicks, and cooling contact fluid.

CleanGels are 0.42 mm thin pre-polymerized polyacrylamide gels, washed and dried down on the film-backing. Short before use they are rehydrated in the DNA disc buffer solution using a dedicated tray: the CleanPool (cat. no. HPE-A01.01). The gels are run on a horizontal flatbed equipment like the SERVA BlueHorizon™ chamber or the HPE™ Tower.

Cat.No.	Size	EUR
43353.01	1 kit	187,00

SDS Buffer Kit Neutral

HS 38220000

SDS buffer system for SDS-electrophoresis. Contains anode buffer, cathode buffer, cooling contact fluid, and electrode wicks.

Cat.No.	Size	EUR
43354.01	1 kit	80,00

Sortex-Kit 10 %

HS 38220000

Storage temperature -15 °C to -25 °C

Cereal-cultivar-differentiation electrophoresis kit. 4 gels 10 % T + special buffer kit for HPE™ FlatTop Tower, BH-2C and Multiphor II™.

Cat.No.	Size	EUR
43358.01	1 kit	187,00

Equipment for Horizontal Gels

HPE™ BlueHorizon™

HS 90272000

A flatbed system for horizontal applications using precast or self-cast gels. Max. gel format 260 x 205 mm. The electrode lid comes with one pair of platinum electrodes. Three fixed electrode positions (distances of 270 mm, 195 mm and 115 mm) allow the usage of a wide range of different sized gels.



BlueHorizon™ is a trademark of SERVA.

Cat.No.	Size	EUR
HPE-BH	1 piece	3.795,00

BluePower™ 500x4 Power Supply

HS 90272000

The allround instrument serving many applications, e.g., SDS PAGE, submarine electrophoresis and blotting. BluePower™ 500x4 features 500 V, 1000 mA and 200 W. The BP-500x4 power supply is particularly advised for operation of up to four vertical slab gel units run at higher voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-500X4	1 piece	1.125,00

SDS PAGE Protein Standards

To determine the molecular weight of proteins separated in polyacrylamide gels in the presence of SDS (SDS PAGE) SERVA offers various protein markers of natural and recombinant origin. The molecular weight of the markers ranges from 5 kDa up to 245 kDa. The markers are available as ready-to-use solutions or as lyophilized protein mixtures to be dissolved in water or sample buffer.

To check the separation process during the electrophoresis run or after blotting the proteins onto a membrane you may use one of the prestained protein markers. These marker proteins are stained covalently. Due to the staining the molecular weight differs from the unstained protein and is, therefore, not suitable for molecular weight determination.

Protein Test Mixture 4 for SDS PAGE

DANGER

H334 ♦ HS 38220000

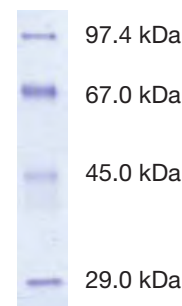
Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis. The bovine albumin (BSA) contains monomers and oligomers.

Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Phosphorylase B	M _r 97 400
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Carbonic anhydrase	M _r 29 000



Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39208.01	10 mg	49,00

Protein Test Mixture 5 for SDS PAGE

DANGER

H302-H334-H341-H361D ♦ HS 38220000

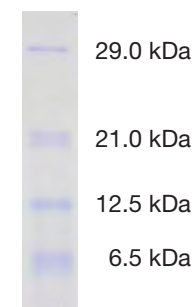
Storage temperature +2 °C to +8 °C

Molecular weight markers for SDS gel electrophoresis.

Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Cytochrome C	M _r 12 500
Trypsin inhibitor (bovine lung)	M _r 6 500



Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39209.01	10 mg	49,00

■ Protein Test Mixture 6 for SDS PAGE



DANGER
H334 ♦ WGK 1 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

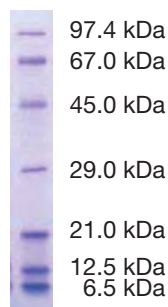
Molecular weight markers for SDS gel electrophoresis. Reconstitute with SDS sample buffer (125 mM Tris-HCl pH 6.8, 2 % SDS, 15 % glycerol, 10 mM DTT, 0.025 % bromophenol blue, 0.025 % Orange G) to final concentration of 1 mg/ml and apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 39076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl.

Phosphorylase B	M _r 97 400
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Cytochrome C	M _r 12 500
Trypsin inhibitor (bovine lung)	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39207.01	10 mg	49,00



■ SERVA Prestained SDS PAGE Protein Marker 6.5 - 200 kDa, liquid mix

HS 38220000
Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Covalently stained standard proteins ranging from 6.5 kDa to 200 kDa (see below).

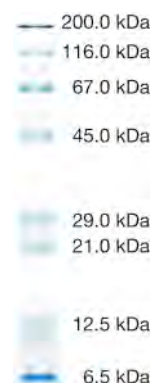
After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. The proteins are covalently stained and are represented in quantities to guarantee an equal distribution in band intensity, the proteins are stored in 50 mM TrisHCl, 2 % SDS, 10 % sucrose, pH 6.8.

Myosin	M _r 200 000
β-Galactosidase	M _r 116 000
Albumin bovine (BSA)	M _r 67 000
Ovalbumin	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Lysozyme	M _r 14 300
Aprotinin	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39216.01	2 x 250 µl	139,00



■ SERVA Unstained SDS PAGE Protein Marker 6.5 - 200 KDa, liquid mix

(Molecular Weight Markers for Proteins)
HS 38220000

Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use.

Standard proteins ranging from 6.5 KDa to 200 KDa (see below).

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®.

For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. Protein content is approx. 0.15 - 0.3 mg/ml, the proteins are in Laemmli buffer (50 mM TrisHCl, 10 mM DTT, 2 % SDS, 0.1 % bromophenol blue).

Myosin	M _r 200 000
β-Galactosidase	M _r 116 000
Albumin bovine (BSA)	M _r 67 000
Ovalbumin	M _r 45 000
Carbonic anhydrase	M _r 29 000
Trypsin inhibitor (soybean)	M _r 21 000
Lysozyme	M _r 14 400
Aprotinin	M _r 6 500

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39215.01	500 µl	48,50



■ SERVA Recombinant SDS PAGE Protein Marker 10 - 150 KDa, liquid mix

HS 38220000
Storage temperature -15 °C to -25 °C

For SDS PAGE. Ready-to-use. Recombinant proteins ranging from 10 kDa to 150 kDa (see below).

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. The proteins are represented in quantities to guarantee an equal distribution in band intensity, the protein content is approx. 0.1 - 0.2 mg/ml. The proteins are stored in 50 mM TrisHCl, 10 mM DTT, 2 % SDS, 0.1 % bromophenol blue, pH 6.8.

Protein 1	M _r 150 000
Protein 2	M _r 100 000
Protein 3	M _r 80 000
Protein 4	M _r 60 000
Protein 5	M _r 40 000
Protein 6	M _r 30 000
Protein 7	M _r 20 000
Protein 8	M _r 10 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39217.01	500 µl	98,50



SERVA Recombinant SDS PAGE Protein Marker 10 - 150 kDa PLUS, liquid mix

HS 38220000

Storage temperature -15 °C to -25 °C

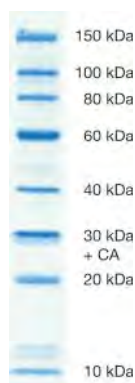
For SDS PAGE. Ready-to-use. Recombinant proteins ranging from 10 kDa to 150 kDa including one prestained band at approx. 30 kDa (see below).

After gently warming the protein standard solution to room temperature, apply 5 µl per lane when staining with SERVA Blue G, SERVA Blue R or Coomassie®. For silver staining, e.g. using SERVA's Silver Staining Kit (cat.no. 35076), dilute 1:5 in 1x Laemmli buffer and apply 5 µl. The proteins are represented in quantities to guarantee an equal distribution in band intensity, the protein content is approx. 0.1 - 0.2 mg/ml. The proteins are stored in 50 mM TrisHCl, 10 mM DTT, 2 % SDS, 0.1 % bromophenol blue, pH 6.8.

Protein 1	M _r 150 000
Protein 2	M _r 100 000
Protein 3	M _r 80 000
Protein 4	M _r 60 000
Protein 5	M _r 40 000
Protein 6	M _r 30 000
Carbonic anhydrase, covalently stained	M _r = approx. 30 000
Protein 7	M _r 20 000
Protein 8	M _r 10 000

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
39218.01	500 µl	105,00



SERVA Dual Color Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

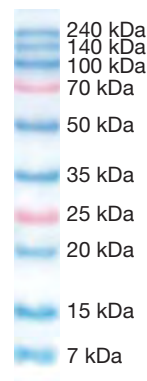
SERVA Dual Color Protein Standard III is a dual color prestained size marker. It is a mixture of 10 recombinant prestained polypeptides with molecular weights ranging from 7 kDa to 240 kDa.

SERVA Dual Color III is ready-to-use without the need of reconstitution or further dilution. A blue and orange chromophore is covalently bound to proteins, and the 10 prestained proteins are visible during electrophoresis or on a membrane after Western Blotting. The 25 kDa and 70 kDa proteins labelled with an orange chromophore are easily identified and serve as a landmark.

Because coupling of the proteins affects their apparent molecular weights in SDS-PAGE, unstained protein standard like the SERVA Unstained Protein Standard III (cat. no. 39249) should be used for accuracy >95 %. Recommended loading volume for a mini gel is 5 - 10 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size	EUR
39252.01	500 µl	143,00



SERVA Unstained Protein Standard III

HS 38220000

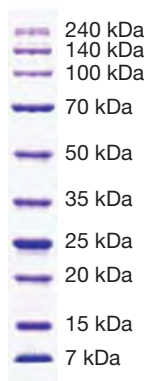
Storage temperature -15 °C to -25 °C

SERVA Unstained Protein Standard III is a mixture of 10 recombinant polypeptides with molecular weights ranging from 7 kDa to 240 kDa. SERVA Unstained Protein Standard III is ready-to-use without the need of reconstitution or further dilution. The 25 kDa and 70 kDa serve as a landmark, because they are present at a higher concentration in the mixture relative to the adjacent bands.

Recommended loading volume for a mini gel is 5 µl/lane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

Cat.No.	Size	EUR
39249.01	500 µl	98,00



SERVACHrom Protein Standard III

HS 38220000

Storage temperature -15 °C to -25 °C

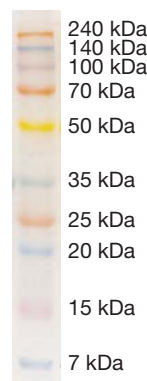
SERVACHrom Protein Standard III is a mixture of 10 recombinant purified and prestained polypeptides. The molecular weights are well-adjusted ranging from 7 to 240 kDa:

7 kDa - blue, 15 kDa - red, 20 kDa - blue, 25 kDa - orange, 35 kDa - green, 50 kDa - yellow, 70 kDa - orange, 100 kDa - violet, 140 kDa - blue, 240 kDa - orange.

It is provided preblended in a ready-to-use formula and no reconstitution or further dilution is necessary before use. For SERVACHrom Protein Standard III, 6 different dyes offer a good contrast so 10 prestained proteins are visible during electrophoresis or electrophoretic transfer from the gel to membrane.

Protein 1	M _r 240 000
Protein 2	M _r 140 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 20 000
Protein 9	M _r 15 000
Protein 10	M _r 7 000

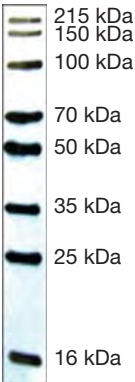
Cat.No.	Size	EUR
39255.01	500 µl	155,00



SERVA Western Blot Protein Standard

HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Western Blot Protein Standard marker is a mixture of 8 recombinant proteins of a molecular weight range from 16 000 to 215 000. It is provided in a ready-to-use formula and no reconstitution, further dilution or adding of extra reagents is necessary before use. The highly purified recombinant proteins are designed to bind immunoglobulins with high affinity in a denatured form, thus marker proteins bind to primary or secondary antibodies in your Western Blotting. SERVA Western Blot marker is suitable for chemiluminescence and chromogenic detection methods using horseradish peroxidase or alkaline phosphatase. The marker proteins are adjusted to result in even signal intensities, thus the marker can not only be used for reproducible molecular weight estimation directly on western blots, but as well for optimizing western transfer conditions and control of the detection system.



Protein 1	M _r 215 000
Protein 2	M _r 150 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 16 000

Cat.No.	Size	EUR
39256.01	250 µl	143,00

SERVA Pink Color Protein Standard II

HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Pink Color Protein Standard II is a mixture of 11 pre-stained proteins of a molecular weight range from 10.5 to 175 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a pink chromophore and contain for easy identification three blue bands at approximate 10 kDa, 40 kDa and 90 kDa (separation on a SDS Tris-Glycine gel). It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Pink Color Protein Standard II is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins. The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 5 µl/lane.



Cat.No.	Size	EUR
39259.01	500 µl	139,00

SERVA Triple Color Protein Standard II

HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard II is a mixture of 10 pre-stained proteins of a molecular weight range from 11 to 180 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-Glycine gel). It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard II is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins. The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 – 5 µl/lane.



Cat.No.	Size	EUR
39257.01	500 µl	139,00

SERVA Triple Color Protein Standard III

HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Triple Color Protein Standard III is a mixture of 13 pre-stained proteins of a molecular weight range from 5 to 245 kDa (separation on a SDS Tris-Glycine gel). Proteins are covalently coupled with a blue chromophore except for one green band at 25 kDa and one red band at 75 kDa (separation on a SDS Tris-Glycine gel). It is provided in a ready-to-use formula and no heating, further dilution or adding of reducing reagents is necessary before use. SERVA Triple Color Protein Standard III is designed for monitoring protein separation during SDS PAGE, verification of Western Blotting transfer efficiency and for approximate sizing of proteins. The marker is stable for up to two weeks at 25 °C and for up to 3 months at 4 °C. Recommended loading volume for a mini gel is 3 – 5 µl/lane.



Cat.No.	Size	EUR
39258.01	500 µl	139,00

Native PAGE Protein Standards

■ Protein Molecular Weight Standards

HS 38220000

Storage temperature -15 °C to -25 °C

To determine the molecular weight of proteins separated in polyacrylamide gels in their native state SERVA offers a set of 8 proteins.

Proteins are either in solution or lyophilized, the lyophilized proteins can easily be dissolved in water or sample buffer. The molecular weights of the proteins range from 12.400 Da (Cytochrome C) up to 450.000 Da (Ferritin horse).

Please note: In the presence of SDS most of the proteins will fall into their subunits, therefore this marker should not be used for SDS PAGE.

25 mg of each. For native electrophoresis.

Ferritin horse	M _r 450 000
Catalase bovine	M _r 240 000
Aldolase rabbit	M _r 160 000
Albumin bovine (BSA)	M _r 67 000
Albumin egg	M _r 45 000
Chymotrypsinogen A	M _r 25 000
Myoglobin equine	M _r 17 800
Cytochrome C	M _r 12 400

Cat.No.	Size	EUR
39064.01	1 kit	180,00

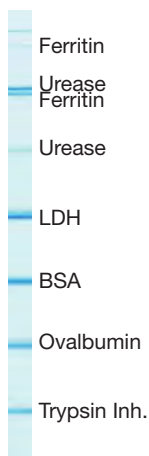
■ SERVA Native Marker, Liquid Mix for BN/CN

HS 38220000

Storage temperature -15 °C to -25 °C

Molecular Weight Marker for Blue and Clear Native PAGE. Ready-to-use. Contains native proteins ranging from 720 kDa to 21 kDa.

Ferritin horse	M _r 450 000/720 000
Urease jack bean	M _r 272 000/545 000
Lactate dehydrogenase porcine	M _r 146 000
Albumin bovine	M _r 67 000
Albumin egg	M _r 45 000
Trypsin inhibitor soybean	M _r 21 000



Cat.No.	Size	EUR
39219.01	5 x 50 µl	135,00

2D-Gelelectrophoresis

IPG Strips for 1D / 2D GE

SERVA IPG *BlueStrips* are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP.

Stored at -20 °C the gel strips are stable for at least 18 months. Each package contains 12 gel strips (all gel strips are 3 mm wide). Other pH gradients and gel strip lengths are available upon request.

- Consistent performance - 12 strips per package, all derived from the same production lot
- Reliability - accurate casting procedures ensures lot-to-lot reproducibility of pH gradient
- GMP/GLP conformity - each strip has its individual lot number
- For rehydration convenient SERVLYT™ carrier ampholytes 2 ml pack sizes corresponding to the pH gradient of the IPG strip are available (see chapter SERVLYT™ Carrier Ampholytes)



SERVA IPG BlueStrips for 1D/2D GE 12 strips per package		
pH gradient	Length cm	Cat. No.
3 - 10	7	43001.01
	11	43031.01
	17	43041.01
	18	43011.01
	24	43021.01
3 - 10 NL*	7	43002.01
	11	43032.01
	17	43042.01
	18	43012.01
	24	43022.01
3 - 6	7	43005.01
	11	43035.01
	17	43045.01
	18	43015.01
	24	43025.01
4 - 7	7	43003.01
	11	43033.01
	17	43043.01
	18	43013.01
	24	43023.01
5 - 8	7	43006.01
	11	43036.01
	17	43046.01
	18	43016.01
	24	43026.01
6 - 10	7	43004.01
	11	43034.01
	17	43044.01
	18	43014.01
	24	43024.01

* NL = non linear

■ Electrode wicks for IPG strips

HS 39173200

Cat.No.	Size	EUR
43080.01	100 pieces	79,00

■ IPG Chamber Cleaner

HS 34022090

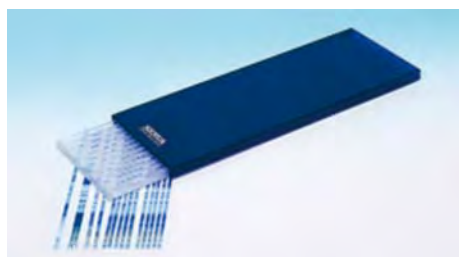
IPG Chamber Cleaner is a pH-neutral, non-toxic, highly active cleaning material. It has been specifically formulated for effectively removing protein deposits from the IPG strip holder, lids, etc. of a First-Dimension Isoelectric Focusing Unit, e.g. IEF100.

Cat.No.	Size	EUR
43399.01	1 L	35,00

■ Rehydration Tray for IPG Strips

HS 90272000

To rehydrate up to 12 IPG strips in lengths up to 24 cm. The rehydration tray is form stable and resistant against chemicals normally used when rehydrating IPG strips. The binding capacity to proteins is very low. The lid protects the IPG strips during rehydration against contamination. After usage the tray can easily be cleaned using a mild washing-up liquid and rinsed with distilled water.



Cat.No.	Size	EUR
43091.01	1 piece	165,00

■ SERVA HPE™ IPG Overlay

HS 27101985

Overlay oil to cover IPG strips during high voltage isoelectric focusing of proteins with nearly no to zero influence on separation behaviour of the IPG strip. Usage of the SERVA IPG Overlay is an important factor for sharp protein spots in high resolution 2D gel electrophoresis. For easy applying the oil a separate dropping bottle is included.

Cat.No.	Size	EUR
43397.01	1 L	49,00

■ SERVA HPE™ IPG strip buffer

HS 38220000

Storage temperature +2 °C to +8 °C

1ml 40 % (w/v) SERVALYT™ mixture (pH 3-10) for IPG strip rehydration and sample preparation for 2D electrophoresis.

SERVA IPG strip buffer works for all IPG strips pH gradients. Due to the low molecular weights of the SERVALYT™ buffer molecules there is no background staining in the 2D gels.

Cat.No.	Size	EUR
43368.01	1 kit	39,00

■ SERVA IPG BlueStrip 3-10 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

SERVA IPG BlueStrips are dried gel strips with immobilized pH gradient used in high resolution 2D gel electrophoresis of proteins. The strips have to be rehydrated before use. The homogeneous polyacrylamide gel matrix is covalently bound to GEL-FIX™ to stabilize the gel. Additionally, a non-binding cover film (GEL-FIX™ for Covers) protects the gel from damage and contamination. Each gel strip has its own lot number printed on and, therefore, is suitable for documentation according to GMP/GLP. Each package contains 12 gel strips (all derived from the same production lot). Other pH gradients and gel strip lengths are available upon request.

Cat.No.	Size	EUR
43001.01	12 strips	69,00

■ SERVA IPG BlueStrip 3-10 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43031.01	12 strips	89,00

■ SERVA IPG BlueStrip 3-10 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43041.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43011.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43021.01	12 strips	115,00

■ SERVA IPG BlueStrip 3-10 NL / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43002.01	12 strips	69,00

■ SERVA IPG BlueStrip 3-10 NL / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43032.01	12 strips	89,00

■ SERVA IPG BlueStrip 3-10 NL / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43042.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 NL / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43012.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-10 NL / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43022.01	12 strips	115,00

■ SERVA IPG BlueStrip 3-6 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43005.01	12 strips	69,00

■ SERVA IPG BlueStrip 3-6 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43035.01	12 strips	89,00

■ SERVA IPG BlueStrip 3-6 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43045.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-6 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43015.01	12 strips	99,00

■ SERVA IPG BlueStrip 3-6 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43025.01	12 strips	115,00

■ SERVA IPG BlueStrip 4-7 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43003.01	12 strips	69,00

■ SERVA IPG BlueStrip 4-7 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43033.01	12 strips	89,00

■ SERVA IPG BlueStrip 4-7 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43043.01	12 strips	99,00

■ SERVA IPG BlueStrip 4-7 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43013.01	12 strips	99,00

■ SERVA IPG BlueStrip 4-7 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43023.01	12 strips	115,00

■ SERVA IPG BlueStrip 5-8 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43006.01	12 strips	69,00

■ SERVA IPG BlueStrip 5-8 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43036.01	12 strips	89,00

■ SERVA IPG BlueStrip 5-8 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43046.01	12 strips	99,00

■ SERVA IPG BlueStrip 5-8 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43016.01	12 strips	99,00

■ SERVA IPG BlueStrip 5-8 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43026.01	12 strips	115,00

■ SERVA IPG BlueStrip 6-10 / 7 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43004.01	12 strips	69,00

■ SERVA IPG BlueStrip 6-10 / 11 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43034.01	12 strips	89,00

■ SERVA IPG BlueStrip 6-10 / 17 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43044.01	12 strips	99,00

■ SERVA IPG BlueStrip 6-10 / 18 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43014.01	12 strips	99,00

■ SERVA IPG BlueStrip 6-10 / 24 cm

HS 38220000

Storage temperature -15 °C to -25 °C **

Cat.No.	Size	EUR
43024.01	12 strips	115,00

Precast 2D HPE™ Gels

The SERVA HPE™ system comprises the SERVA HPE™ tower and appropriate gels developed especially for use with the HPE™ tower.

The SERVA HPE™ tower is a multilevel flatbed electrophoresis system providing second to none resolution, reproducibility and sensitivity – the first true “High Performance Electrophoresis” system. Up to four HPE™ gels can be operated simultaneously to conduct either 1- and 2-dimensional separations.

HPE™ Gels at a Glance

- Industrial production precision of the gels guarantees highly reliable gels and reproducible results
- Specially designed gel buffer system allows shelf life of 24 months
- Detection of wide molecular weight range, from 300,000 down to 6500 Da
- Buffers and gels are ready-to-use
- Non-fluorescent backing film for all fluorescent labelling and staining procedures
- High efficient sample transfer from 1st to 2nd dimension due to application of the IPG strips into a precast trench of the gel

2D HPE™ Large Format Gel Kits

2D HPE™ large format gels are suitable for running 1 x 24 cm IPG strip (e.g. SERVA IPG BlueStrip) plus one marker lane by horizontal electrophoresis on HPE™ Tower, BH-2C or Multiphor II™. 2D HPE™ large format gels are available on standard backing or on non-fluorescence (NF) backing for fluorescence staining and labelling. All kits include running and equilibration buffers, wicks and cooling contact fluid.

■ 2D HPE™ Large Gel 10 - 15 % Kit Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43311.01	1 kit	inquire

■ 2D HPE™ Large Gel 12.5 % Kit Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43310.01	1 kit	269,00

■ 2D HPE™ Large Gel NF 10 - 15 % Kit Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 1 x 24 cm IPG strip plus one marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Also suitable for Silver and Coomassie® staining but for best results use gels on standard backing.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43305.01	1 kit	inquire

■ 2D HPE™ Large Gel NF 12.5 % Kit Size: 255 x 200 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Gels are on NF-backing providing best results for fluorescent staining and labelling. Also suitable for Silver and Coomassie® staining but for best results use gels on standard backing.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43304.01	1 kit	289,00

■ HPE™ Large Gel Adaptor Kit

HS 90272000

HPE™ gels are available in two formats:

- 250 x 110 mm, regular
- 255 x 250 mm, large, for running large format 2D separation

The HPE™ Large Gel Adaptor Kit allows the usage of the large format high resolution precast flatbed HPE gels on the Multiphor™ II electrophoresis chamber. The purpose of this kit is to adjust the width of the cooling plate to accommodate the large flatbed gels for 2D electrophoresis and the electrode wicks.

The HPE™ Large Gel Adaptor Kit takes 2 minutes to install and will not modify the existing system.

HPE™ is a trademark of SERVA Electrophoresis GmbH.

Multiphor™ is a trademark of GE Healthcare.

Cat.No.	Size	EUR
HPE-GA01	1 piece	795,00

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

2D HPE™ Double Gel Kits

2D HPE™ double gels are suitable for running 2 x 11 cm IPG strip (e.g. SERVA IPG *BlueStrip*) plus one marker lane by horizontal electrophoresis on HPE™ Tower, BH-2C or Multiphor II™. 2D HPE™ double format gels are available on standard backing or on non-fluorescence (NF) backing for fluorescence staining and labelling. All kits include running and equilibration buffers, wicks and cooling contact fluid.

■ 2D HPE™ Double Gel 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Multiphor™ is a registered trademark of GE Healthcare.

Cat.No.	Size	EUR
43309.01	1 kit	inquire

■ 2D HPE™ DoubleGel 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strips plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43308.01	1 kit	199,00

■ 2D HPE™ Double Gel NF 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strip plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43302.01	1 kit	inquire

■ 2D HPE™ Double Gel NF 10 - 15 % Kit Size: 250 x 110 x 0.65

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 2 x 11 cm IPG strip plus 1 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43303.01	1 kit	inquire

2D HPE™ Triple Gel Kits

2D HPE™ triple gel format gels are suitable for running 3 x 7 cm IPG strip (e.g. SERVA IPG *BlueStrip*) plus one marker lane by horizontal electrophoresis on HPE™ Tower, BH-2C or Multiphor II™.

HPE 2D triple format gels are available on standard backing or on non-fluorescence (NF) backing for fluorescence staining and labelling. All kits include running and equilibration buffers, wicks and cooling contact fluid.

■ 2D HPE™ Triple Gel 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43307.01	1 kit	inquire

■ 2D HPE™ Triple Gel 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers, FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lanes by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on standard backing providing best results for Silver and Coomassie® staining. Not suitable for fluorescent applications.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43306.01	1 kit	inquire

■ 2D HPE™ Triple Gel NF 10 - 15 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43301.01	1 kit	239,00

■ 2D HPE™ Triple Gel NF 12.5 % Kit Size: 250 x 110 x 0.65 mm

HS 38220000

Kit comprising 4 plastic-backed gels, including running and equilibration buffers FS wicks and cooling contact fluid. Suitable for running 3 x 7 cm IPG strips plus 2 marker lane by horizontal electrophoresis on HPE™ Tower, FlatTop or Multiphor II™. Gels are on NF-backing providing best results for fluorescent staining and labelling. Can also be used for Silver and Coomassie® staining but for best results use gels on standard backings.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43300.01	1 kit	inquire

Precast 2D Vertical Gel Kits

The 2D Dalt gel kits contain 6 or 12 gels for ETTAN DALTsix and ETTAN DALTtwelve, respectively. Buffer kits containing anodal and cathodal buffers as well as IPG equilibration buffer and agarose for strip fixation, DALTsix 1 run.

■ 2D Gel DALTsix NF 12.5 % Kit

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43313.01	1 kit	435,00

■ 2D Gel DALTsix NF 10 -15 % Kit

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43314.01	1 kit	inquire

■ 2D Gel DALTsix 12.5 % Kit

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43317.01	1 kit	420,00

■ 2D Gel DALTsix 10 -15 % Kit

HS 38220000

6 gels + buffer kit for ETTAN DALTsix. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43318.01	1 kit	inquire

■ 2D Gel DALTtwelve NF 12.5% Kit

HS 38220000

12 gels + buffer kit for ETTAN DALTtwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support.

Cat.No.	Size	EUR
43315.01	1 kit	inquire

■ 2D Gel DALTtwelve NF 10 -15 % Kit

HS 38220000

12 gels + buffer kit for ETTAN DALTtwelve. 1 mm thick, 26 x 20 cm non-fluorescent gel support

Cat.No.	Size	EUR
43316.01	1 kit	inquire

■ 2D Gel DALTtwelve 12.5 % Kit

HS 38220000

12 gels + buffer kit for ETTAN DALTtwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43319.01	1 kit	759,00

■ 2D Gel DALTtwelve 10 -15 % Kit

HS 38220000

12 gels + buffer kit for ETTAN DALTtwelve. 1 mm thick, 26 x 20 cm standard gel support.

Cat.No.	Size	EUR
43320.01	1 kit	inquire

■ Buffer Kit 2D Gel DALTsix

HS 38220000

0.5 L anodal buffer (10X), 0.3 L cathodal buffer (5X), 50 ml IPG equilibration buffer, agarose for strip fixation, DALTsix 1 run.

Cat.No.	Size	EUR
43325.01	1 kit	70,00

■ Buffer Kit 2D Gel DALTtwelve

HS 38220000

1.0 L anodal buffer (10X), 0.6 L cathodal buffer (5X), 100 ml IPG equilibration buffer, agarose for strip fixation, DALTtwelve 1 run.

Cat.No.	Size	EUR
43326.01	1 kit	105,00

Products for Sample Preparation:
see special chapter at p. 123

Proteome Standards

SERVA offers the unique set of Proteome Markers containing 8 proteins qualified for 2D gel electrophoresis and application in liquid chromatography/mass spectrometry. Proteins ranging 11.7 to 77 kDa and spanning the entire pI range are supplied in equimolar amounts. The Proteome Markers are characterized carefully by 2D electrophoresis and also by LC/MS: identity of each protein is verified by protein sequence analysis.

The SERVA Proteome Markers provide a unique and useful tool to calibrate 2D gels, to serve as internal LC/MS standard or to be added to protein samples. Offered as native blend and as tryptic digest.

SERVA Proteome Markers are developed in collaboration with the German Society of Proteome Research (DGPf).

Reference:

Meyer H., in 10. Arbeitstagung Mikromethoden in der Proteinchemie, Martinsried, Germany, 2003

SERVA Proteome Markers

HS 38220000

Storage temperature -15 °C to -25 °C

5 vials of marker proteins, lyophilized, approx. 5 -10 applications per vial for 2D electrophoresis.



Kindly provided by the organization of the „10. Arbeitstagung Mikromethoden in der Proteinchemie“ in 2003, Martinsried, Germany

Glucose oxidase (<i>Aspergillus niger</i>)	M_r 77 000
Albumin (bovine)	M_r 67 000
Catalase	M_r 58 000
Lipase (from bacteria)	M_r 33 000
Glucose-1-dehydrogenase (from bacteria; M_r 113 000)	M_r 32 000 (subunits)
β -Lactoglobulin (bovine)	M_r 18 400
Myoglobin (horse)	M_r 17 800
Cytochrome C (horse)	M_r 11 700

Cat.No.	Size	EUR
39220.01	1 kit	245,00

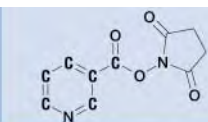
Stable Isotope Labelling of Proteins

For quantitative and qualitative analysis of proteins in proteome studies by mass spectrometry.

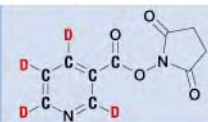
The ICPL™ methodology is based on the isotope labelling of free amino groups of intact proteins by amine specific reagents. Therefore the method is suited for all kinds of protein samples, including extracts of tissue or body fluids, and compatible with all separation methods currently employed in proteome studies. The kit allows for the efficient, accurate and reproducible quantification of proteins with high sequence coverage.

- Labelling of proteins before doing any cleavage or separation step reduces the possibilities of experimental errors to a minimum
- Labelling of proteins allows the identification and quantification of protein isoforms and posttranslational modifications

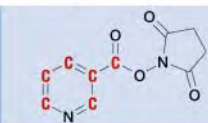
1-($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide
(^{12}C -Nic-Reagent): $M_r = 105.0215 \text{ Da}$



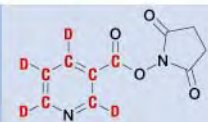
1-($^{12}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide
($^{12}\text{C}^2$ -Nic-Reagent): $M_r = 109.0715 \text{ Da}$



1-($^{13}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide
(^{13}C -Nic-Reagent): $M_r = 111.0419 \text{ Da}$



1-($^{13}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide
($^{13}\text{C}^2$ -Nic-Reagent): $M_r = 115.0919 \text{ Da}$



■ SERVA ICPL™ Kit



WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with two labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-Nicotinoyloxy-succinimide

Applying the ICPL™ method the simultaneous quantitative analysis of two independent proteome samples can be performed by stable protein labelling side by side.

The kit contains ^{12}C - and ^{13}C -Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A + B.

The kit contains reagents for 2 x 6 reactions. A detailed instruction manual is included.

ICPL = trademark of TopLab GmbH, Martinsried, Germany

Cat.No.	Size	EUR
39230.01	1 kit	1.120,00

■ SERVA ICPL™ Triplex Kit



WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with three labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-Nicotinoyloxy-succinimide

Applying the ICPL™ triplex method the simultaneous quantitative analysis of three independent proteome samples can be performed by stable protein labelling side by side.

The kit contains ^{12}C -, ^2D - and ^{13}C - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B and C.

The kit contains reagents for 3 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39231.01	1 kit	1.290,00

■ SERVA ICPL™ Quadruplex Kit



WARNING

H302-H315-H317-H319-H335-H351-H373 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

The powerful ICPL™-technology for comparative quantification of proteins with four labels:

1 - ($^{12}\text{C}_6^1\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{12}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{H}_4$)-Nicotinoyloxy-succinimide

1 - ($^{13}\text{C}_6^2\text{D}_4$)-Nicotinoyloxy-succinimide.

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side. The kit contains ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer and standard protein mix A, B, C and X. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39232.01	1 kit	1.490,00

■ SERVA ICPL™ Quadruplex Plus Kit



WARNING

H302-H315-H317-H319-H335-H351 ♦ HS 38220000
Storage temperature -15 °C to -25 °C

Applying the ICPL™ quadruplex method the simultaneous quantitative analysis of four independent proteome samples can be performed by stable protein labelling side by side.

Included are MS approved endoproteinases Trypsin NB and Glu-C for achieving the highest sequence coverage. All four labels can be freely combined with each other. By omitting one label you can as well compare only two or three samples. The enclosed ICPL™-Standard PLUS allows calibration of the analysis system.

The kit contains ^{12}C -, ^2D -, ^{13}C and $^{13}\text{C}^2\text{D}$ - Nic-reagent, stop solution 1 + 2, reduction solution, alkylation reagent, lysis buffer, standard protein mix A, B, C and X, ICPL™-Standard PLUS, Trypsin NB modified, and Endoproteinase Glu-C. The kit contains reagents for 4 x 6 reactions. A detailed instruction manual is included.

Cat.No.	Size	EUR
39233.01	1 kit	1.590,00

Enzymes

The use of enzymes of high purity and specificity is essential in protein analysis.

Especially in mass spectrometry (MS) only endoproteases with low unspecific cleavage enable high sequence coverage; a decisive factor for successful protein identification. SERVA's MS approved endoproteinases guarantee you superior results in MS analysis or protein sequencing.

■ Endoproteinase Glu-C (V8 proteinase), MS approved from *Staphylococcus aureus* lyophil.

3.4.21.19 ♦ CAS [66676-43-5]

HS 35079090

Storage temperature -15 °C to -25 °C *

Endoproteinase Glu-C (V8) is a serine endoproteinase isolated from *Staphylococcus aureus* V8.

Approved quality for use with in-gel digestion and mass spectrometric analysis.

The specificity of Glu-C is primarily determined by the buffer pH and composition. Using phosphate buffers (pH 7.8), Glu-C will cleave at both glutamyl and aspartyl bonds. Ammonium bicarbonate buffer (pH 7.8) will lead to a preferential cleavage of glutamyl bonds.

The presence of proline residues on the carboxy side of the peptide bond inhibits the cleavage.

Due to its highly specific cleavage of peptides Glu-C is used in proteomics for peptide mapping and protein sequence work.

Cat.No.	Size	EUR
20986.01	2 x 25 µg	89,00

■ Trypsin NB Premium Grade, MS approved from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Approved for use in in-gel digestion and mass spectrometry analysis. Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Premium Grade, MS approved is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues of trypsin results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Premium Grade, MS approved is purified by chromatography. No chymotryptic activity is detectable. Every lot is approved for use in in-gel digestion and mass spectrometry analysis. Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37284.01	4 x 25 µg	78,00

■ Trypsin NB Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Sequencing Grade, modified, is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37283.01	4 x 25 µg	59,00

Blotting

Nucleic acids are usually separated on agarose gels. Because of the consistency of the gel matrix, blotting can be performed as a capillary blot using SSC or SSPE as blotting buffer. The ideal transfer membrane is a nylon membrane with positive surface like Nylon-Bind B. Proteins are most often separated by acrylamide gel electrophoresis. As these gels are too restrictive for capillary blotting, Western Blots are done by electro transfer.

Depending on the type of blotting (tank or semi-dry blotting) and the specific characteristics of the proteins, different buffers may be used for Western Blotting. For small proteins or for tank blotting after SDS PAGE Towbin buffer is recommended, for blotting proteins after SDS PAGE or IEF by semi-dry blotting, a discontinuous buffer system is recommended. Although nitrocellulose membranes are still used for routine applications, the optimum result is achieved with PVDF membranes like Fluorobind membrane. Detection of membrane bound antigens or nucleic acid sequences labelled with Horseradish Peroxidase (HRP) or Alkaline Phosphatase (AP) can be done with colorimetric substrates like TMB or BCIP/NBT or chemiluminescent substrates.

Detection Reagents

Before membrane bound antigens can be detected, unspecific binding sites for antibodies on the transfer membrane have to be blocked. For many applications skim milk powder is an economic alternative to bovine serum albumin (BSA). For Western Blots where skim milk cannot be used, SERVA offers highly purified BSA like Albumin bovine Fraction V, pH 7.0, cat. no. 11930.

After blotting of nucleic acids before hybridization, non-specific binding sites are blocked by Denhardt's solution (cat. no. 39603). For preparation of Denhardt's solution or other molecular biology applications, Albumin bovine DNase/RNase free, cat no. 11967 is the optimal choice. In addition to a broad range of high quality substrates as powder, SERVA offers ready-to-use, highly sensitive substrate solutions for easy and fast detection of proteins in Western Blots.

SERVALight HRP Chemiluminescence Kits are a new family of highly sensitive ready-to-use kits for chemiluminescence detection of membrane bound antigens (Western Blot) or nucleic acid sequences (Southern and Northern Blot), labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-conjugated antibodies/streptavidin. They are easy to use, have an excellent stability, extended signal duration and save money and precious antibodies due to high dilution of antibodies.

■ **Albumin bovine, DNase/RNase-free** molecular biology grade

M_r ca. 67 000 ♦ CAS [9048-46-8]

HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin manufactured by a proprietary heat shock precipitation and ultrafiltration process. Especially suitable for use in hybridization and nucleic acid based assays.

Assay (CAF) > 97.0 %
pH (10 % in H₂O) 6.5 – 7.4
DNase/RNase not detected

Cat.No.	Size	EUR
11967.01	5 g	20,00
11967.02	25 g	56,00
11967.03	100 g	168,00

■ **Albumin bovine Fraction V, pH 7.0** standard grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. Standard quality for many applications, e.g. as protein standard, growth promoter in serum-free media for the cultivation of animal cells, supplement in microbiological nutrient media, diluent/stabilizer in diagnostic systems, stabilizer of isolated enzymes and antibodies or blocking agent to prevent non-specific absorption.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 6.8 – 7.2
Moisture (KF) max. 5 %
Iron (µg/g, AA) max. 15
IgG not detectable

Cat.No.	Size	EUR
11930.01	10 g	20,00
11930.02	25 g	39,00
11930.03	100 g	109,00
11930.04	500 g	435,00

■ **Albumin bovine Fraction V, Protease-free** lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process; double heated to insure inactivation of proteolytic activity. Excellent for protease sensitive immunoassays. Useful as stabilizing agent for proteins or enzymes in buffers or for lyophilization. Stabilizer for long-term storage of highly diluted antibodies. Essential component for hybridization techniques. Blocking agent to prevent non-specific binding of proteins to microtiter wells in ELISA systems.

Assay (CAF) min. 98.0 %
Protease (Casein hydrolysis) not detectable
pH (7 % in H₂O) 6.8 – 7.2
Moisture (KF) max. 5.0 %
IgG not detectable

Cat.No.	Size	EUR
11926.01	5 g	21,00
11926.02	25 g	57,00
11926.03	100 g	190,00
11926.04	500 g	745,00

■ **BCIP/NBT ready-to-use substrate**

for immunohistochemistry and blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component substrate solution for detection of alkaline phosphatase in immunohistochemical, in situ hybridization and blotting procedures. A very fine blue-purple precipitate will be localized at sites of AP activity on tissue sections. Purple bands or dots will be visible at the sites of AP activity on membranes.

Contains a proprietary enhancer and a non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
15246.01	100 ml	57,00

■ **5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt** research grade

(BCIP)

C₈H₆NO₂BrClP-C₇H₉N or C₁₅H₁₅BrClN₂O₄P ♦ M_r 433.6

♦ CAS [6578-06-9]

EINECS 229-506-1 ♦ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

Assay (HPLC) min. 99.0 %

References:

1. Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size	EUR
15247.02	100 mg	25,00
15247.03	500 mg	85,00

■ **Chemiluminescence reagent for Horseradish Peroxidase**

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use substrate solution for chemiluminescence detection of membrane bound antigens or nucleic acid sequences directly with Horseradish Peroxidase (HRP) or indirectly with HRP-conjugated antibodies or Streptavidin labeled (1). Prior before use add 30 % hydrogen peroxide in a 1:1000 dilution (not provided) and use 100 µl/cm².

- High resolution and sensitivity
- Short exposure time
- Document your results on film or with a chemiluminescence applicable gel documentation system.

References:

1. Thorpe, G.H.G. and Kricka, L. J. (1986) Methods Enzymol. **133**, 331 – 353

Cat.No.	Size	EUR
42582.01	250 ml	51,00
42582.02	500 ml	85,00

■ **Denhardt's solution, 50x concentrate** molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

DNase/RNase not detected. 0.2 µm filtered.

Suitable for nucleic acid hybridization. Denhardt's solution is a mixture of blocking agents capable of saturating non-specific binding sites and to be used in membrane-based hybridization protocols. It is recommended for use with nylon membranes.

Composition:

Albumin Fraction V 0.1 g/10 ml
Polyvinylpyrrolidone 0.1 g/10 ml
Ficoll® 400 0.1 g/10 ml

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (9.48-50, B.15)
2. Denhardt, D.T., (1966) Biochem. Biophys. Res. Commun. **23**(5), 641-646

Cat.No.	Size	EUR
39603.01	10 ml	36,50
39603.02	5 x 10 ml	95,00

■ **FICOLL™ 400** molecular biology grade

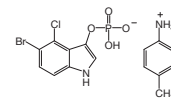
M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

DNase/RNase not detected. Suitable for use in hybridization buffers like Denhardt's Solution (cat. no. 39603).

FICOLL = trademark of GE Healthcare companies.

Cat.No.	Size	EUR
39763.01	10 g	47,00
39763.02	50 g	135,00



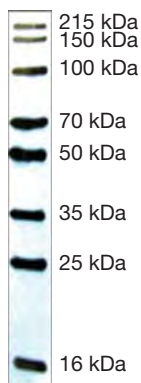
SERVA Western Blot Protein Standard

HS 38220000

Storage temperature -15 °C to -25 °C

SERVA Western Blot Protein Standard marker is a mixture of 8 recombinant proteins of a molecular weight range from 16 000 to 215 000. It is provided in a ready-to-use formula and no reconstitution, further dilution or adding of extra reagents is necessary before use. The highly purified recombinant proteins are designed to bind immunoglobulins with high affinity in a denatured form, thus marker proteins bind to primary or secondary antibodies in your Western Blotting. SERVA Western Blot marker is suitable for chemiluminescence and chromogenic detection methods using horseradish peroxidase or alkaline phosphatase.

The marker proteins are adjusted to result in even signal intensities, thus the marker can not only be used for reproducible molecular weight estimation directly on western blots, but as well for optimizing western transfer conditions and control of the detection system.



Protein 1	M _r 215 000
Protein 2	M _r 150 000
Protein 3	M _r 100 000
Protein 4	M _r 70 000
Protein 5	M _r 50 000
Protein 6	M _r 35 000
Protein 7	M _r 25 000
Protein 8	M _r 16 000

Cat.No.	Size	EUR
39256.01	250 µl	143,00

Luminol research grade

(3-Aminophthalhydrazine; 5-Amino-2,3-dihydro-1,4-phthalazinedione)

$C_8H_7N_3O_2$ ♦ M_r 177.2 ♦ CAS [521-31-3]

WARNING

H302-H332 ♦ EINECS 208-309-4 ♦ WGK 1 ♦

HS 29280090

For microdetermination of superoxide dismutase (2). Peroxidase reagent (1).

Assay (titr.) min. 95.0 %

References:

- Freeman, T.M. & Seitz, W.R. (1978) Anal. Chem. **50**, 1242-6
- Huu, T.P. et al. (1984) Anal. Biochem. **142**, 467-2
- Roswell, D.F. & White, E.H. (1978) Methods Enzymol. **57**, 409-23
- Leong, M.M. L. & Fox, G.R. (1990) Methods Enzymol. **184**, 442-51

Cat.No.	Size	EUR
28085.02	5 g	29,00
28085.03	25 g	116,00



Nitro Blue tetrazolium chloride analytical grade

(NBT; Nitro BT; Nitrotriazolium Blue chloride; Ditetrazolium dye)

$C_{40}H_{30}Cl_2N_{10}O_6$ ♦ M_r 817.7 ♦ CAS [298-83-9]

WARNING

H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦

HS 29339980

Storage temperature +2 °C to +8 °C

A ditetrazolium compound for demonstrating succinic dehydrogenase activity (1). Glucose-6-phosphate dehydrogenase (2). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

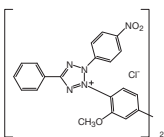
Staining solution for western blots: 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

Purity min. 98.0 %

References:

- Nachlas, M.M. et al. (1957) J. Histochem. Cytochem. **5**, 420-36
- Negi, D.S. & Stephens, R.J. (1977) J. Histochem. Cytochem. **25**, 149-54
- Auscher, C. & Amory, N. (1976) Biomedicine **5**, 37-8

Cat.No.	Size	EUR
30550.01	250 mg	23,00
30550.02	1 g	64,00
30550.03	5 g	263,00



Polyvinylpyrrolidone 90 molecular biology grade

CAS [9003-39-8]

WGK 1 ♦ HS 39059990

DNase/RNase not detected. Suitable for preparation of Denhardt's Solution for Southern and Northern Blots.

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size	EUR
39609.01	100 g	25,00
39609.02	500 g	59,00

SERVALight Polar CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin. The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- High sensitivity, low pictogram limit of detection
- Long light emission for 6 hours
- Primary antibody dilution 1:1000 - 1:5000
- Secondary antibody dilution 1:20.000 - 1:100.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42584.01	100 ml	68,00
42584.02	250 ml	130,00
42584.03	500 ml	203,00

SERVALight Eos CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Very highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- Very high sensitivity, high femtogram limit of detection
- Very long and steady light emission for 12 hours
- Primary antibody dilution 1:1000 - 1:15.000
- Secondary antibody dilution 1:25.000 - 1:150.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42585.01	50 ml	70,00
42585.02	250 ml	176,00
42585.03	500 ml	335,00

SERVALight EosUltra CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Ultrahigh sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

SERVALight EosUltra substrate is optimized for maximum length of light emission and therefore ideal for detection by CCD imaging systems.

- Ultrahigh sensitivity, low femtogram limit of detection
- Extremely long light emission at a very high signal level for 18 hours
- Primary antibody dilution 1:5000 -1:50.000
- Secondary antibody dilution 1:50.000 – 1:250.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42586.01	20 ml	83,00
42586.02	100 ml	338,00
42586.03	200 ml	560,00

SERVALight Helios CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Extremely sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

Due to the extremely high light output of the SERVALight Helios substrate very short exposure times or very high dilution of antibodies can be used. Especially when using film detection this is critical to receive optimal performance.

- Extreme sensitivity, low femtogram limit of detection
- Long light emission for 8 hours
- Primary antibody dilution 1:5000 -1:100.000
- Secondary antibody dilution 1:100.000 – 1:500.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42587.01	20 ml	92,00
42587.02	100 ml	395,00
42587.03	200 ml	630,00

Skim Milk Powder for blotting

CAS [68514-61-4]

HS 04021011

Skim milk powder is used as a blocking reagent in immunological assays like Western Blotting or ELISA. It is as well suitable for blocking of nitrocellulose filters in cDNA cloning.

It is not suitable for biotin/streptavidin detection systems, because milk contains biotin.

Protein	32.0 - 35.0 %
Fat max.	1.25 %
Lactose	51.0 - 56.0 %
pH (10 % in water)	6.5 - 6.7
Ash	7.2 - 8.2
Water max.	4.0 %

References:

1. Johnson, D. A. et al. (1987) Gene Anal. Technol. **1**, 3 – 8
2. Harlow, E. & Lane, D. (1988) Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
42590.01	500 g	16,00
42590.02	1 kg	26,00
42590.03	5 kg	94,00

3,3',5,5'-Tetramethylbenzidine research grade

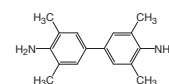
(TMB)

C₁₆H₂₀N₂ ♦ M_r 240.4 ♦ CAS [54827-17-7]



WARNING

H302-H341 ♦ EINECS 259-364-6 ♦ WGK 2 ♦ HS 29215990



Substrate for horseradish peroxidase. More sensitive than ABTS and more stable and less toxic than diaminobenzidine. See also TMB Ready to use ELISA substrate (cat.no. 37068) and TMB ready-to-use substrate for blotting (cat.no. 37070).

Assay (titr.)

98.0 - 102.0 %

Cat.No.	Size	EUR
35926.02	5 g	72,00
35926.03	25 g	254,00

TMB ready-to-use substrate for blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component TMB substrate for detection of horseradish peroxidase in western, northern, southern and dot blots. The reaction product is a blue precipitate. Contains a proprietary enhancer and non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
37070.01	100 ml	58,00

Tween® 20 pure

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)

M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP. HLB 16.7. Non-ionic surfactant that effectively suppresses unspecific reactions between antibodies, antigens and other molecules (1, 2). Also used as a solubilizer in membrane chemistry (3) and for density centrifugation of viruses (4).

Free dioxan	max. 10 ppm
Free ethylene oxide	max. 1 ppm
Heavy metals (Ph. Eur.)	max. 10 ppm
Non animal origin	

® Registered trademark of ICI, Ltd.

References:

1. Thean, E.T. & Toh, B.H. (1989) Anal. Biochem. **177**, 256-8
2. Tovey, E.R. et al. (1989) Electrophoresis **10**, 243-9
3. Lund, S. et al. (1989) J. Biol. Chem. **264**, 4907-15
4. Boeye, A. & DeRees, A. (1989) Arch. Virol. **107**, 77-84

Cat.No.	Size	EUR
37470.01	500 g	20,00
37470.02	5 kg	120,00

For Dialysis Tubing

see special chapter at p. 156

Transfer Buffers

Depending on the type of blotting (tank or semi-dry blotting) and the specific characteristics of the proteins, different buffers may be used for Western Blotting.

For small proteins or for tank blotting after SDS PAGE Towbin buffer is recommended.

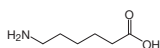
For blotting proteins after SDS PAGE or IEF by semi-dry blotting a discontinuous buffer system is recommended. In Southern and Northern Blotting experiments 20x SSC or 20x SSPE buffer is used.

SERVA's ready-to-use transfer buffers save you time and labor and guarantee best results. Only high quality, application proved reagents are used.

In addition, we offer a comprehensive range of high quality reagents for making your own solutions according to your needs.

ε-Aminocaproic acid analytical grade

(6-Amino-n-hexanoic acid)
C₆H₁₃NO₂ ♦ M_r 131.2 ♦ CAS [60-32-2]



EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

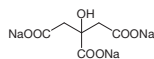
References:

1. Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11
2. Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3

Cat.No.	Size	EUR
12548.03	100 g	31,00

Citric acid-Na₃-salt-2H₂O analytical grade

(tri-Sodium citrate)
C₆H₅O₇·Na₃·2H₂O ♦ M_r 294.1 ♦ CAS [6132-04-3]



EINECS 200-675-3 ♦ WGK 1 ♦ HS 29181500

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %

Cat.No.	Size	EUR
38642.02	1 kg	28,00
38642.03	5 kg	110,00

Ethanol denaturated 96 %

C₂H₆O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER
H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC) min. 96.0 %
Methyl ethyl ketone 1 %
Aldehyde max. 30 ppm
Acidity max. 10 ppm
Methanol max. 1000 ppm
Residue on evaporation max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

Ethylenediamine tetraacetic acid-Na₂-salt molecular biology grade

(Versene disodium; EDTA-disodium)
C₁₀H₁₄N₂O₈·Na₂·2H₂O ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
39760.01	250 g	27,00

Glycine analytical grade

(Aminoacetic acid; Glycocoli)
C₂H₅NO₂ ♦ M_r 75.07 ♦ CAS [56-40-6]



EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
23390.02	500 g	15,00
23390.04	1 kg	23,00
23390.03	5 kg	89,00

Glycine electrophoresis grade

(Aminoacetic acid; Glycocoli)
C₂H₅NO₂ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Glycine is a component of Tris-Glycine (cat. no. 42530) and Tris-Glycine-SDS running buffers (cat. no. 42529) for polyacrylamide gel electrophoresis and as well of Towbin buffer for Western Blots (cat. no. 42558).

Tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 10 ppm
Chloride (Cl) max. 70 ppm

Cat.No.	Size	EUR
23391.01	500 g	27,00
23391.02	1 kg	42,00
23391.03	5 kg	148,50

Methanol analytical grade

CH₃O ♦ M_r 32.04 ♦ CAS [67-56-1]



DANGER
H225-H301-H311-H370 ♦ EG-
Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦
IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Assay (GC) min. 99.8 %
Density (20 °C) 0.7915
Water max. 1000 ppm
Acidity max. 10 ppm
Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

Semi-dry Blotting Buffer Kit for Western Blotting



DANGER
H301-H311-H331-H370 ♦ GGVSE/ADR 6.1 II UN2810 ♦
IATA 6.1 II UN2810 ♦ WGK 1 ♦ HS 38220000

For Western Blotting in the „Semi-dry“ System. Ready-to-use kit, consisting of 3 components:

Buffer I (conc. anode buffer): 0.3 M Tris and 20 % methanol in aqueous solution.

Buffer II (diluted anode buffer): 0.03 M Tris and 20 % methanol in aqueous solution.

Buffer III (cathode buffer): 0.025 M Tris/HCl (pH 9.4), 0.04 M 6-aminocaproic acid and 20 % methanol in aqueous solution.

Cat.No.	Size	EUR
42559.01	3 x 500 ml	101,00

Sodium chloride molecular biology grade

NaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

DNase/RNase not detected.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size	EUR
39781.01	250 g	20,00
39781.02	1 kg	29,00

■ **di-Sodium hydrogen phosphate-2H₂O** molecular biology grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

HS 28352200

DNase/RNase not detected. Buffering substance.

Assay min. 99.5 %
pH 5 % solution 9.0 - 9.2
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size	EUR
39783.01	250 g	32,00
39783.02	1 kg	55,00

■ **20xSSC buffer** molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected. 20 x concentrated aqueous solution. Commonly used buffer in transfer, blocking and hybridization in both Northern and Southern Blotting

Composition:

NaCl (cat. no. 39781) 175.32 g/L (3 M)
Na₃-citrate x 2 H₂O 88.23 g/L (0.3 M)
(cat. no. 38642)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (pp. 7.46-7.47, 9.38-9.39, 9.50)
2. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), Suppl. 40, A.2.5

Cat.No.	Size	EUR
42555.01	1 L	27,00
42555.04	10 L	149,00

■ **Towbin Buffer for Western Blotting** 10x concentrate

HS 38220000

Supplied as 10 x concentrate (0.25 M Tris and 1.92 M glycine in aqueous solution).

Working buffer: dilute 100 ml of 10X concentrate with 200 ml methanol and 700 ml distilled water.

Cat.No.	Size	EUR
42558.02	1 L	23,00

■ **Tris(hydroxymethyl)aminomethane** electrophoresis grade

C₄H₁₁NO₃ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ HS 29221985

Ultrapur quality, tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.) min. 99.9 %
A 1 cm 10 % in water
260 nm max. 0.15
280 nm max. 0.15
430 nm max. 0.07
Heavy metals (Pb) max. 1 ppm
pH (5 % in water) 10.0 - 11.5

Cat.No.	Size	EUR
37181.01	500 g	33,00
37181.02	1 kg	48,00
37181.03	2,5 kg	97,00

■ **Tris(hydroxymethyl)aminomethane** analytical grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

C₄H₁₁NO₃ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING
H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985
USP. Buffer quality for biological and enzymatic research.

Assay (titr.) min. 99.9 %
A 1 cm/10 % in water
235 nm max. 0.60
260 nm max. 0.15
280 nm max. 0.15
430 nm max. 0.07
Heavy metals (Pb) max. 1 ppm
pH (5 % in water) 10.0 - 11.5

Cat.No.	Size	EUR
37180.02	100 g	15,00
37180.03	500 g	35,00
37180.05	1 kg	59,00
37180.04	2,5 kg	135,00

Blotting Membranes

For blotting of proteins and nucleic acids SERVA offers different types of transfer membranes. The table below shows which membrane is recommended for your application.

Application for Nitrocellulose (NC)-, Nylon-Bind and Fluorobind Membranes

Application	Technique	Nitrocellulose (NC)	Nylon-Bind B	Fluorobind
DNA	Capillary Southern Transfer		+++	
	Southern Transfer		++++	
	Alkaline Transfer		+++	
	Vacuum Transfer		+++	
	Serum Blot Dot		+++	
	Dot Blot		+++	
	Sequencing Direct Blotting		+++	
RNA	Capillary Northern Transfer		+++	
	Electrotransfer		+++	
	Vacuum Transfer		+++	
	Dot Blot		+++	
Proteins	Direct Staining with Anionic Dyes			+++
	Immunochemical Staining		+++	+++
	Western Transfer	+++	+++	+++
	Dot Blot	+++	+++	++
	Sequencing			+++

Nitrocellulose Membranes

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose membranes exhibit high binding capacity and have low background.

■ NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 µm, format 88 mm x 88 mm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size	EUR
42516.01	10 sheets	82,00

■ NC 45 Nitrocellulose Membrane, plain, white

Pore size 0.45 µm, format 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

Cat.No.	Size	EUR
71208.01	1 roll	385,00

■ NC 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 20 cm x 20 cm

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

References:

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size	EUR
71223.01	5 sheets	175,00

■ NC 2 Nitrocellulose Membrane, white

Pore size 0.2 µm, format: 30 cm x 3 m

CAS [9004-70-0]



WARNING

H228 ♦ EG-Index 603-037-01-3 ♦ GGVSE/ADR 4.1 II UN3270 ♦ IATA 4.1 II UN3270 ♦ WGK 1 ♦ HS 39122019

Especially for use with proteins of low molecular weight (< 20 000 Dalton). Nitrocellulose membranes are the most popular membranes for Western, Southern and Northern Blotting. The membranes bind both proteins and nucleic acids. Nitrocellulose exhibits high binding capacity and has low background.

References:

1. Burnette, N. (1981) Anal. Biochem. **112**, 195-203
2. Tsang, V.C.W. et al. (1983) Methods Enzymol. **92**, 377

Cat.No.	Size	EUR
71224.01	1 roll	490,00

Nylon-Bind Membranes

Nylon-Bind membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The higher inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

■ Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 20 cm x 20 cm

HS 39219090

Nylon-Bind membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size	EUR
42570.01	10 sheets	195,00

■ Nylon-Bind B Membrane, positive surface

Pore size 0.45 µm, format 30 cm x 3 m

HS 39219090

Nylon-Bind membranes feature low background, high sensitivity and high binding capacities for blotting of proteins and nucleic acids. The high inner surface of Nylon-Bind membranes is based on the unique microporous structure of the nylon material.

Cat.No.	Size	EUR
42569.01	1 roll	310,00

Fluorobind/Immobilon-P Membranes

Fluorobind membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

The membranes show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 25 cm x 3 m

HS 39219090

Fluorobind membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size	EUR
42571.01	1 roll	344,00

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 20 cm x 20 cm

HS 39219090

Fluorobind membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size	EUR
42572.01	10 sheets	195,00

■ Fluorobind Membrane, surface PVDF

Pore size 0.2 µm, format: 10 cm x 10 cm

HS 39219090

Fluorobind membranes are non-fluorescent, based on PVDF-type chemistry and are suited especially for protein blotting and protein sequencing.

Cat.No.	Size	EUR
42573.01	20 sheets	72,00

■ Immobilon™-P-membrane

Pore size 0.2 µm, format: 26.5 cm x 3.75 m

HS 39219090

Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Immobilon = trademark of Millipore.

Cat.No.	Size	EUR
42574.01	1 roll	670,00

■ Immobilon™-P-membrane

Pore size 0.45 µm, format: 26.5 cm x 3.75 m

HS 39219090

Immobilon™-P-membranes developed by Millipore Corp. are specially designed for Western Blot techniques. The membranes, made of polyvinylidene fluoride (PVDF), show excellent mechanical stability and are compatible with most staining procedures including immunological methods.

Cat.No.	Size	EUR
42581.01	1 roll	540,00

Equipment for Blotting

■ BlueFlash™ Small

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 100 x 100 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 23 x 15 x 8.3 cm

BlueFlash™ is a trademark of SERVA.

Cat.No.	Size	EUR
BF-S	1 piece	925,00

■ BlueFlash™ Medium

HS 90272000

Semi-dry blotting is faster than tank blotting. It requires less material and generates less heat. This has to do with the large volume of electrically conductive buffer used in tank blotting. Attempts to achieve high electric field strengths for rapid blotting lead to very high current demands and consequently large heat loads. These are not usually a factor in semi-dry blotting as the closely spaced electrodes separated by less conductive saturated filter papers permit rapid electrophoresis without the very high current.

Both, discontinuous and continuous buffer systems can be applied. Discontinuous buffer systems are particularly recommended because transfer is very homogeneous for a wide range of molecular weights, even larger proteins up to 200 kDa can be transferred with an efficiency of > 80%. The BlueFlash™ Semi-Dry Blotters are equipped with long-lasting electrodes made from synthetic carbon. They are resistant to corrosion (pH 3 - 9, SDS) and built for homogeneous, fast and efficient transfer of nucleic acids and proteins.

The spring-mounted anode can be adapted to thicker gels (up to 5 mm) and gel stacks. The acrylic housing is resistant to 10 % ethanol and easy to clean. Safety lid, including design to prevent short-circuit (no gel). Little bench space required.

Flexible Format and Application:

Choose the right format for your application. SERVA offers semi-dry blotter units with various blotting areas ranging from small-sized BF-S and BF-M for mini gels up to large format BF-XXL to fit 2D gels. The sizes available suit all gel formats. They are suitable for blotting of large format gels (e.g. 2D) or simultaneous transfer of a series of mini gels. Usually, stacks of 2 gels can be blotted.

BlueFlash™ is a trademark of SERVA.



Blotting area: 150 x 150 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 28 x 20 x 8.3 cm

Cat.No.	Size	EUR
BF-M	1 piece	1.215,00

BlueFlash™ Large

HS 90272000

Description: see BlueFlash Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 250 x 280 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 45 x 33 x 8.3 cm

Cat.No.	Size	EUR
BF-L	1 piece	1.995,00

BlueFlash™ X-Large

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 385 x 235 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 43 x 37 x 8.3 cm

Cat.No.	Size	EUR
BF-XL	1 piece	1.895,00

BlueFlash™ XX-Large

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 385 x 385 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 51 x 43 x 8.3 cm

Cat.No.	Size	EUR
BF-XXL	1 piece	2.050,00

BluePower™ 200x4 Power Supply

HS 90272000

The BluePower™ 200x4 (200 V, 2 A, 250 W) is suited for applications requiring high current (e. g. tank blotting of proteins). It is also compatible with separation of nucleic acids. 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-200X4	1 piece	1.125,00

BluePower™ 500x4 Power Supply

HS 90272000

The allround instrument serving many applications, e.g., SDS PAGE, submarine electrophoresis and blotting. BluePower™ 500x4 features 500 V, 1000 mA and 200 W. The BP-500x4 power supply is particularly advised for operation of up to four vertical slab gel units run at higher voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-500X4	1 piece	1.125,00

Nucleic Acid Electrophoresis

Agarose Media

The electrophoretic behavior in gels of DNA and RNA is effected by their size and shape. Both RNA and DNA can exist as single and double stranded molecules and the single stranded forms have significant secondary and tertiary structure. For this reason single stranded nucleic acids are best separated as denatured structures. This is most often an issue for ssDNA after sequencing reactions, and RNA which can be denatured by urea, methylmercuric hydroxide, formamide, formaldehyde and a number of other agents.

Agarose is a highly purified naturally occurring polysaccharide and preparation of agarose gels involves simply heating the powdered agarose in buffer to dissolve it. It gels upon cooling. Like acrylamide, the pore size of an agarose gel is inversely dependent on the agarose concentration. The pores in agarose gels are generally much larger than those in acrylamide gels and are widely used in separation of nucleic acids. Low molecular weight nucleic acids and oligonucleotides, however, are usually separated by PAGE, due to smaller pore size of the gel matrix.

Agarose gels are simply formed by placing the necessary weight of agarose in the required volume of buffer. This is then heated to boiling to dissolve the agarose. A microwave oven is the fastest way to do this. Before casting the gel the agarose solution is cooled down to 50 °C.

There are many different types of agarose available. The best choice for routine DNA electrophoresis is Agarose SERVA Wide Range (cat.no. 11406) or Agarose for DNA electrophoresis (cat. no. 11404). This offers good gel strength and low impurities that might interfere with subsequent procedures.

Other qualities like Agarose SERVA for PCR (cat. no. 11383) are made for efficient separation of small PCR generated DNA fragments. It has a high gel strength for better handling and enhanced visibility due to improved clarity of the gel. For easy recovering of DNA fragments after electrophoretic separation a range of low melting agaroses are available.

Agarose SERVA research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Agarose with low EEO for analytical and preparative gel electrophoresis and blotting of DNA/RNA fragments > 500 bp.

Gelling temperature (1.5 %) 34 - 38 °C
 Gel strength (1.5 %) > 1100 g/cm²
 Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size	EUR
11380.01	25 g	35,00
11380.02	100 g	99,00
11380.03	250 g	215,00
11380.05	500 g	390,00

■ **Agarose SERVA Wide Range** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

For analytical and preparative electrophoresis and blotting of DNA/RNA fragments between 250 and 23,000 bp, PCR products, preparation of plasmids, screening and cleaning.
DNase/RNase-free.

Gelling temperature (1.5 %) 34 - 39 °C
Gel strength (1.5 %) min. 1200 g/cm²
Electro endosmosis (EEO) max. 0.13

Cat.No.	Size	EUR
11406.01	250 g	95,00
11406.02	500 g	170,00
11406.03	1 kg	325,00

■ **Agarose SERVA for DNA electrophoresis** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of DNA fragments between 1000 and 20,000 bp, also suitable for pulsed field electrophoresis. Each lot is tested for the absence of *EcoRI* inhibition.

Gelling temperature (1.5 %) 34 - 39 °C
Gel strength (1.5 %) min. 1700 g/cm²
Electro endosmosis (EEO) max. 0.13

Cat.No.	Size	EUR
11404.02	25 g	40,00
11404.03	100 g	75,00
11404.04	250 g	135,00
11404.07	500 g	235,00
11404.05	1 kg	460,00

■ **Agarose SERVA low melting** research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative nucleic acid electrophoresis of DNA/RNA fragments >500 bp. Highly efficient recovery of DNA fragments at low temperature for subsequent in-gel manipulations like restriction analysis or ligation reactions.

Gelling temperature (1.5 %) max. 31 °C
Gel strength (1.5 %) > 200 g/cm²
Electro endosmosis (EEO) 0.05 - 0.14

Cat.No.	Size	EUR
11408.01	5 g	39,00
11408.02	25 g	145,00
11408.03	100 g	465,00

■ **Agarose SERVA Premium** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative gel electrophoresis of DNA/RNA fragments > 500 bp, recovery of DNA fragments for further modifications (restriction analysis, ligation reactions), blotting of nucleic acids. Special quality tested for applications in molecular biology.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size	EUR
11381.01	25 g	45,00
11381.02	100 g	122,00
11381.03	250 g	265,00

■ **Agarose SERVA Premium low melting** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For efficient separation of DNA/RNA fragments > 500 bp, best for in-gel enzymatic processing like restriction analysis, ligation reactions, PCR and others. Ideal for digestion by agarase enzymes, making it very easy to recover or to analyse large DNA fragments by cloning or other enzymatic applications. Special tested quality for applications in molecular biology.

Gelling temperature (1.5 %) 24 - 28 °C
Gel strength (1.5 %) > 500 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11382.01	25 g	165,00
11382.02	100 g	425,00
11382.03	250 g	950,00

■ **Agarose SERVA for PCR** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp; special quality tested for applications in molecular biology. High gel strength for better handling and enhanced visibility due to improved clarity of the gel.

Gelling temperature (1.5 %) 28 - 34 °C
Gel strength (1.5 %) > 600 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11383.01	25 g	95,00
11383.02	100 g	315,00
11383.03	250 g	670,00

■ **Agarose SERVA for PCR low melting** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp. Special quality tested for applications in molecular biology. Best for fine resolution at agarose concentrations ranging from 1.8 % up to 4.5 %. Best for in-gel enzymatic processing. Ideal for digestion by agarase enzymes. Easy to recover small DNA fragments for subsequent analysis or for enzymatic modifications.

Gelling temperature (1.5 %) ca. 26 °C
Gel strength (1.5 %) > 200 g/cm²
Electro endosmosis (EEO) ≤ 0.10

Cat.No.	Size	EUR
11384.01	25 g	125,00
11384.02	100 g	425,00
11384.03	250 g	895,00

■ **Agarose SERVA Tablets, 0.5 g/tablet** molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

Agarose pressed into tablets of 0.5 g each. For analytical and preparative electrophoresis of DNA fragments between 200 and 20,000 bp. Special quality tested for applications in molecular biology.

There is no need to weigh the agarose. Just simply disperse the requested number of tablets in running buffer for 5 minutes at room temperature and then heat the suspension in a microwave until the material is dissolved. The achieved gel volume per tablet for different agarose concentrations is listed below:

% agarose	gel volume/tablet
0.5 %	100.0 ml
0.75 %	66.7 ml
1.0 %	50.0 ml
1.5 %	33.3 ml
2.0 %	25.0 ml

Gel. temp. (1.5 %) 34 - 39 °C
Gel strength (1.5 %) > 1000 g/cm²
Electro endosmosis (EEO) ≤ 0.13

Cat.No.	Size	EUR
11405.01	100 g	95,00
11405.02	500 g	395,00

DNA Standards

For size determination of DNA fragments in agarose gels you need size markers of high quality under the respect of fragment size and purity.

SERVA offers two types of DNA MW size markers:

SERVA DNA standard lyophilized

- Range covers traditional MW standards made by digestion of pUC19, pBR328 or phage λ DNA as well as 100 bp and 1 Kbp ladders for PCR fragment analysis
- High-quality fragment ends, lyophilized - can be resuspended in buffer of choice for labelling experiments, e.g. fill-in, 5'-end label
- Stable for at least 3 years (if stored at -20 °C), 1 x 1 ml sample buffer is included for easy and fast resuspension of the DNA fragments

SERVA FastLoad DNA ladder

- Range covers ready-to-use, supplied in loading buffer DNA ladders for fragment ranges from 50 – 1500 bp, 100 – 3000 bp and 250 bp – 25 Kbp
- For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated
- Stable for 6 months at 25 °C and for 12 months at 4 °C. For long term storage store at -20 °C

■ SERVA DNA Standard 1 KBp DNA ladder lyophilized

HS 38220000

Storage temperature -15 °C to -25 °C

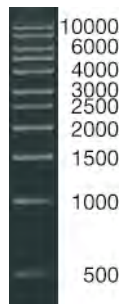
The SERVA DNA Standard 1 KBp DNA ladder contains 11 fragments ranging from 500 Bp to 10000 Bp:

500, 1000, 1500, 2000, 2500, 3000, 4000, 5000, 6000, 8000, 10000 Bp.

All fragments with EcoRI ends for easy 5'-end labelling. Ideal for the analysis of larger DNA fragments generated by enzymatic restriction of plasmid DNA or for fragments generated by PCR in combination with SERVA DNA Standard 100 Bp ladder (cat. no. 39311 or 39312). The larger sized fragments are represented in lower mass, resulting in a clear grouping of the bands. The separation distance is 70 mm in a 1.2 % agarose gel.

Only 0.5 - 0.7 μ g per lane are needed; for at least 300 applications.

Instructions of use and 2 ml loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39314.01	4 x 50 μ g	125,00

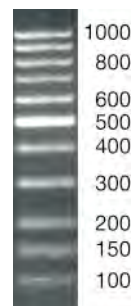
■ SERVA DNA Standard 100 Bp ladder equalized, lyophilized

HS 38220000

Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 100 Bp ladder equalized contains 11 fragments ranging from 100 Bp to 1000 Bp: **100, 150, 200, 300, 400, 500 (3x), 600, 700, 800, 900 and 1000 Bp.**

Ideal for the analysis of DNA fragments generated from plasmid DNA or for PCR generated DNA fragments. For optimal results use 1.5 - 2.0 % agarose gels. A separation distance of 45 - 80 mm is recommended. 500 Bp band 3fold for easy identification, all bands with the same intensity after staining for easy mass estimation. All fragments with EcoRI ends for easy 5'-end labelling. For at least 65 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39313.01	20 μ g	59,00

■ SERVA DNA Standard 100 Bp ladder equimolar, lyophilized

HS 38220000

Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 100 Bp ladder equimolar contains 11 fragments ranging from 100 Bp to 1000 Bp: **100, 150, 200, 300, 400, 500 (2x), 600, 700, 800, 900 and 1000 Bp.**

Ideal for the analysis of DNA fragments generated from plasmid DNA or for PCR generated DNA fragments. For optimal results use 1.5 - 2 % agarose gels. A separation distance of 60 - 80 mm is recommended. All fragments with EcoRI ends for easy labelling, the 5'-end labeled DNA marker behaves like an equalized DNA marker. For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39311.01	50 μ g	59,00

■ SERVA DNA Standard 100 Bp ladder extended, lyophilized

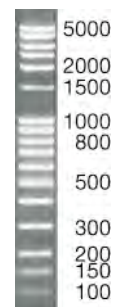
HS 38220000

Storage temperature -15 °C to -25 °C

The SERVA DNA Standard 100 Bp ladder extended contains 17 fragments ranging from 100 Bp to 5000 Bp:

100, 150, 200, 300, 400, 500 (2x), 600, 700, 800, 900, 1000, 1500, 2000, 2500, 3000, 4000 and 5000 Bp.

Ideal for the analysis of DNA fragments generated from plasmid DNA or for PCR generated larger DNA fragments. For optimal results use 1.0 - 2.0 % agarose gels. A separation distance of 60 - 80 mm is recommended. All fragments with EcoRI ends for easy 5'-end labelling. For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39312.01	50 μ g	59,00

SERVA DNA Standard Lambda x BstE II, lyophilized

HS 38220000

Storage temperature -15 °C to -25 °C

The SERVA Lambda x BstEII DNA Marker contains 14 fragments ranging from 117 Bp to 8454 Bp:

117, 224, 702, 1264, 1371, 1929, 2323, 3675, 4324, 4822, 5687, 6369, 7242 and 8454 Bp

(the 5687 bp and 8453 bp fragments contain the cohesive ends of bacteriophage lambda and may hybridize resulting in a high molecular weight band at 14140 bp, ends may be separated by heating to 65 °C for 5 minutes and placing on ice).

Ideal for the analysis of DNA fragments generated from genomic or plasmid DNA. For optimal results use 0.8 % - 1.2 % agarose gels with a separation distance of approx. 60 - 80 mm.

For at least 100 applications.

Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39301.01	2 x 50 µg	55,00

SERVA DNA Standard pBR328 Mix, lyophilized

HS 38220000

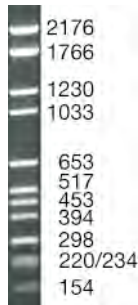
Storage temperature -15 °C to -25 °C

The SERVA pBR328 Mix DNA Marker contains 12 fragments ranging from 154 Bp to 2176 Bp:

154, 220, 234, 298, 394, 453, 517, 653, 1033, 1230, 1766 and 2176 Bp.

Ideal for the analysis of DNA fragments between 300 and 1700 bp in 1.2 - 1.8 % agarose gels. In agarose gels a separation distance of approx. 35 - 80 mm is recommended.

For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39302.01	50 µg	55,00

SERVA DNA Standard pUC19 x MspI, lyophilized

HS 38220000

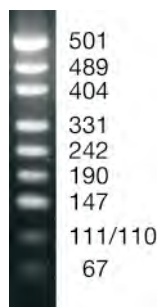
Storage temperature -15 °C to -25 °C

The SERVA pUC19 x MspI DNA Marker contains 13 fragments ranging from 26 Bp to 501 Bp:

26, 34, 34, 67, 110, 111, 147, 190, 242, 331, 404, 489 and 501 Bp.

Ideal for the analysis of small DNA fragments generated from plasmid DNA or for PCR generated DNA fragments. For optimal results use 2 % DNA Agar gels or 2 - 4 % special agarose gels. For fast analysis of PCR products a separation distance of 20 mm is sufficient for band separation.

For at least 50 applications. Instructions of use and 1 ml separate loading dye solution for resuspension of the lyophilized DNA fragments are included.



Cat.No.	Size	EUR
39304.01	50 µg	55,00

SERVA FastLoad 50 bp DNA ladder

HS 38220000

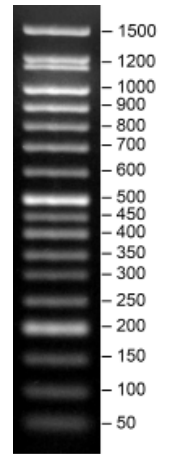
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 17 fragments from 50 - 1500 base pairs. The 200 bp and 500 bp bands have increased intensity and serve as reference points.

For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.56 µg/load).

Recommended load is 5 µl/well. Contains Orange G as tracking dye.

Stable for 12 months at 4 °C. For long term storage store at -20 °C.



Cat.No.	Size	EUR
39315.01	500 µl	54,00

SERVA FastLoad 100 bp DNA ladder

HS 38220000

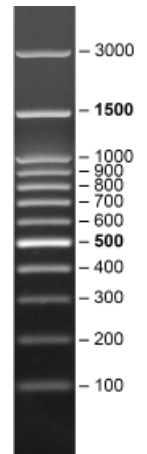
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 12 fragments from 100 - 3000 base pairs. The 500 bp and 1500 bp bands have increased intensity and serve as reference points.

For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.54 µg/load).

Recommended load is 5 µl/well. Contains Orange G and Xylene Cyanol as tracking dye.

Stable for 6 months at 25 °C and for 12 months at 4 °C. For long term storage store at -20 °C.

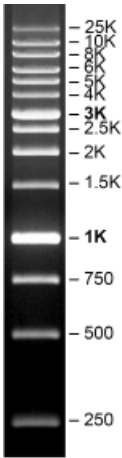


Cat.No.	Size	EUR
39316.01	500 µl	54,00

SERVA FastLoad 1 kb DNA ladder

HS 38220000
Storage temperature -15 °C to -25 °C

Ready-to-Use DNA standard for agarose gel electrophoresis containing 14 fragments from 250 – 25000 base pairs. The 1000 bp and 3000 bp bands have increased intensity and serve as reference points. For estimation of DNA mass of bands of similar size with comparable intensity, the approximate mass of each band is indicated (0.52 µg/load). Recommended load is 5 µl/well. Contains Orange G and Xylene Cyanol as tracking dye. Stable for 6 months at 25 °C and for 12 months at 4 °C. For long term storage store at -20 °C.



Cat.No.	Size	EUR
39317.01	500 µl	54,00

Equipment for Submarine Electrophoresis

BlueMarine™ 100

HS 90272000

Gel format 7 x 10 cm for quick analysis of up to 28 samples. Contains main unit and also: 1 removable UV transparent gel tray (7 x 10 cm), 2 gel casting gates, 1 comb (1.0 mm, 8 samples).



Operational Data
Maximum operating voltage: 300 Volt
Maximum operating current: 200 mAmp
Approx. gel volume (5 mm gel): 35 ml
Possible comb positions: 2
Maximum of loadable samples: 28
Electrode separation: 18 cm
Recommended volts per cm: 14 - 140

BlueMarine™ is a trademark of SERVA.

Cat.No.	Size	EUR
BM 100	1 piece	465,00

BlueMarine™ 200

HS 90272000

Gel formats 15 x 15 cm or 15 x 20 cm for best resolution or high throughput analysis. Contains main unit and also: 1 removable UV transparent gel tray (15 x 20 cm), 1 removable UV transparent gel tray (15 x 15 cm), 2 gel casting gates, 2 combs (1.0 mm, 16 samples).



Operational Data (Tray: 15 x 15 cm / 15 x 20 cm):
Maximum operating voltage: 500 V / 500 V
Maximum operating current: 300 mA / 300 mA
Approx. gel volume (5 mm gel): 115 ml / 150 ml
Possible comb positions: 2 / 4
Maximum of loadable samples: 62 / 124
Electrode separation: 28.5 cm / 28.5 cm
Recommended volts per cm: 20 - 200 / 20 - 200

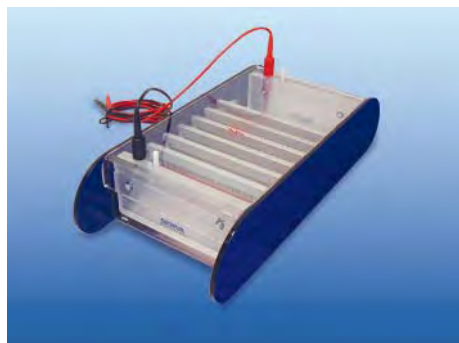
Cat.No.	Size	EUR
BM 200	1 piece	640,00

■ **BlueMarine™ HTS**

HS 90272000

Gel format 17.5 cm x 19.2 cm for high resolution long runs of single samples or analysis of complete 96-well microtiter plates. By changing the left/right orientation of the comb you can position the sample wells one upon the other or shifted to each other.

Contains main unit and also: 1 removable UV transparent gel tray, 2 aluminum gel casting gates, 6 aluminum combs with 17 sample wells.

■ **Operational Data:**

Maximum operating voltage:	500 V
Maximum operating current:	300 mA
Approx. gel volume (5 mm gel):	160 ml
Possible comb positions:	6
Maximum of loadable samples:	102
Electrode separation:	28.5 cm
Recommended volts per cm:	20 - 200 V
Dimensions (W x L x H):	19.5 x 38 x 80 cm

Cat.No.	Size	EUR
BM HTS	1 piece	1.095,00

■ **BluePower™ 500x4 Power Supply**

HS 90272000

The allround instrument serving many applications, e.g., SDS PAGE, submarine electrophoresis and blotting. BluePower™ 500x4 features 500 V, 1000 mA and 200 W. The BP-500x4 power supply is particularly advised for operation of up to four vertical slab gel units run at higher voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-500X4	1 piece	1.125,00

■ **Gel Preparation & Gel Media**

SERVA's ready-to-use acrylamide/bis solutions are suitable for all nucleic acid and protein electrophoresis techniques – from standard SDS-PAGE to high performance 2 D electrophoresis.

Our acrylamide and N,N'-methylene bisacrylamide stock solutions allow you to cast your own gels with the desired acrylamide/bisacrylamide ratio. The solutions are made from highly purified acrylamide and N,N'-methylene bisacrylamide, stabilized and application tested. Minimize your health risk and optimize your results.

■ **Acrylamide 2X research grade**C₃H₅NO ♦ M_r 71.1 ♦ CAS [79-06-1]

DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK 0,03mg/m³ ♦

EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦ IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Standard quality, applicable to general electrophoretic separations.

Assay (HPLC)	min. 98.0 %
A 290 nm	max. 0.7 (5 %)
pH	5.0 - 8.0 (5 %)
Conductivity (µS/cm)	max. 100 (40 %)
Acrylic acid (titr.)	max. 0.03 %

Cat.No.	Size	EUR
10675.01	100 g	21,00
10675.02	1 kg	51,00

■ **Acrylamide 4X analytical grade**C₃H₅NO ♦ M_r 71.1 ♦ CAS [79-06-1]

DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK

0,03 mg/m³ ♦ EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦ IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Quality of analytical grade, applicable to all electrophoresis techniques. Recrystallized.

Polymerizing time: max. 30 min. (3 mM TEMED / 3 mM APS, 15 % gel).

Assay (HPLC)	min. 99.0 %
A 290 nm	max. 0.6 (5 %)
pH	5.0 - 8.0 (5 %)
Conductivity (µS)	max. 20 (40 %)
Content of free acrylic acid	max. 0.002 %

Cat.No.	Size	EUR
10674.02	100 g	30,00
10674.03	1 kg	181,00

■ **Acrylamide 4X molecular biology grade**C₃H₅NO ♦ M_r 71.1 ♦ CAS [79-06-1]

DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372 ♦ Muta. 1B, Carc. 1B, Repr. 2 ♦ MAK/TRK 0,03mg/m³ ♦

EG-Index 616-003-00-0 ♦ GGVSE/ADR 6.1 III UN2074 ♦ IATA 6.1 III UN2074 ♦ EINECS 201-173-7 ♦ WGK 3L ♦ HS 29241900

Storage temperature +2 °C to +8 °C

DNase and RNase: non-detectable. Special quality for use in molecular biological applications as well as all electrophoresis techniques.

Assay (GC)	min. 99.0 %
A 290 nm	max. 0.6 (5 %)
pH	5.0 - 8.0 (5 %)
Conductivity (µS)	max. 20 (40 %)
Content of free acrylic acid	max. 0.002 %

Cat.No.	Size	EUR
10678.02	100 g	40,00
10678.03	1 kg	240,00

■ **Acrylamide 4X solution (40 % w/v)**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution contains 40 % (w/v) highly purified acrylamide in deionized water.

A 290 nm max. 0.6 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) max. 100
 Content of free acrylic acid max. 0.03 %

Cat.No.	Size	EUR
10677.01	1 L	79,00

■ **Acrylamide/Bis Solution, 19:1 (40 % w/v), 5 % C**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) < 100
 Content of free acrylic acid < 0.03 %

Cat.No.	Size	EUR
10679.01	500 ml	29,00
10679.02	4 x 500 ml	96,00
10679.03	1 L	52,00

■ **Acrylamide/Bis Solution, 29:1 (30 % w/v), 3.3 % C**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) < 100
 Content of free acrylic acid < 0.03 %

Cat.No.	Size	EUR
10687.01	500 ml	26,00
10687.02	4 x 500 ml	89,00
10687.03	1 L	46,00

■ **Acrylamide/Bis Solution, 29:1 (40 % w/v), 3.3 % C**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) < 100
 Content of free acrylic acid < 0.03 %

Cat.No.	Size	EUR
10680.01	500 ml	29,00
10680.02	4 x 500 ml	96,00
10680.03	1 L	52,00

■ **Acrylamide/Bis Solution, 37.5:1 (30 % w/v), 2.6 % C**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) < 100
 Content of free acrylic acid < 0.03 %

Cat.No.	Size	EUR
10688.01	500 ml	26,00
10688.02	4 x 500 ml	89,00
10688.03	1 L	46,00

■ **Acrylamide/Bis Solution, 37.5:1 (40 % w/v), 2.6 % C**

DANGER

H302-H312-H315-H317-H319-H340-H350-H361f-H372 ♦
Muta. 1B, Carc. 1B, Repr. 2 ♦ GGVSE/ADR 6.1 III UN3426 ♦

IATA 6.1 III UN3426 ♦ WGK 3 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Solution of acrylamide and N,N'-methylene bisacrylamide (Bis) in deionized water. Convenient to use, reduced risk of neurotoxic acrylamide dust in the air. Applicable to all electrophoresis techniques.

A 290 nm < 0.7 (5 %)
 pH 6.0 - 8.0 (5 %)
 Conductivity (μS) < 100
 Content of free acrylic acid < 0.03 %

Cat.No.	Size	EUR
10681.01	500 ml	29,00
10681.02	4 x 500 ml	96,00
10681.03	1 L	52,00

■ **Ammonium persulfate electrophoresis grade**

(APS; Ammonium peroxodisulfate)

(NH₄)₂S₂O₈ ♦ M_r 228.2 ♦ CAS [7727-54-0]

DANGER

H272-H302-H315-H317-H319-H334-H335 ♦ EG-
Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444

♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

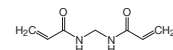
Polymerisation catalyst for acrylamide/bisacrylamide polymerisation.
Suitable for standard and high resolution electrophoresis techniques.

Assay (titr.) min. 99.0 %
 pH 5% in water 3.2 - 3.9

Cat.No.	Size	EUR
13376.01	50 g	13,00
13376.02	250 g	17,00

■ **N,N'-Methylene bisacrylamide 2X analytical grade**

(Bis(acrylamido)methane)

C₇H₁₀N₂O₂ ♦ M_r 154.2 ♦ CAS [110-26-9]

WARNING

H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Assay (titr.) min. 99.0 %
 A 290 nm/1 % in water max. 0.25
 pH 1 % in water 5.5 - 7.5

Cat.No.	Size	EUR
29195.04	10 g	13,00
29195.02	50 g	27,00
29195.03	250 g	93,00

N,N'-Methylene bisacrylamide 2X solution 2 % (w/v)

WGK 1 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

N,N'-Methylene bisacrylamide 2X solution. Solution contains 2 % (w/v) highly purified »Bis« in deionized water.

A 290 nm 1:1 in water ca. 0.25
pH 1:1 in water 6.0 - 8.0

Cat.No.	Size	EUR
29197.01	1 L	39,00

N,N'-Methylene bisacrylamide 4X analytical grade

(Bis(acrylamido)methane)

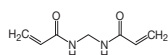
C₇H₁₀N₂O₂ ♦ M_r 154.2 ♦ CAS [110-26-9]

WARNING

H302 ♦ EINECS 203-750-9 ♦ WGK 2 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Ultrapure electrophoresis grade, applicable for standard and high resolution electrophoresis techniques.

Assay (titr.) min. 99.0 %
A 290 nm/ 1 % in water max. 0.25
pH 1 % in water 5.5 - 7.5

Cat.No.	Size	EUR
29196.01	10 g	17,00
29196.02	50 g	36,00
29196.03	250 g	119,00

N,N,N',N'-Tetramethyl-ethylenediamine for electrophoresis

(TEMED; TD)

C₈H₁₆N₂ ♦ M_r 116.21 ♦ CAS [110-18-9]

DANGER

H225-H302-H314-H332 ♦ EG-Index 612-103-00-3

♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Filled under argon.

Assay (GC) 99.0 %

Cat.No.	Size	EUR
35930.01	10 ml	14,00
35930.02	25 ml	19,00

GEL-FIX™/NetFix™ Gel Support

GEL-FIX™ products are sturdy supports to be incorporated during casting of gels. GEL-FIX™ is made from polyester film. Both surfaces of the film are chemically activated providing covalent binding to the gel layer. The gel will adhere to the GEL-FIX™ film not only during electrophoresis but in all subsequent staining and fixing procedures. Thus, it supports the gel layer maintaining exact shape and size (no shrinking, no swelling, no tearing). For documentation, the film-bound gel can be air-dried just as easy at room temperature to result in a transparent film, ideally suited to store the original gel in the laboratory notebook or to acquire it for electronic data processing. GEL-FIX™ for Covers is used to protect the surface of a cast gel from drying out but prevents the gel from adhesion.

- GEL-FIX™ can be cut into every desired size
- GEL-FIX™ is stable to temperatures up to 110 °C
- GEL-FIX™ shelf life time is 24 months if stored dry/dark
- GEL-FIX™ is transparent to UV light above 310 nm
- Customized formats are available upon request

GEL-FIX™ for PAG: for casting of polyacrylamide gels 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels (for polymer concentration of at least 10 % or higher)

GEL-FIX™ for Agarose: for casting of agarose gels 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently

GEL-FIX™ for Covers: for covering gel surfaces 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels



NetFix™ is an inert, reinforcing fabric which serves as an ideal support for gel layers. If the agarose or polyacrylamide gel is subject to blotting after electrophoresis we recommend NetFix™ for Agarose resp. NetFix™ for PAG. The polyester fabric is activated to bind agarose resp. polyacrylamide. If a thin gel is to be removed after electrophoresis and transferred onto the membrane for blotting transfer it can easily get damaged (torn) because it is so thin. Usage of activated GEL-FIX™, however, to support the gel layer is an obstacle to blotting transfer because it must be removed physically before blotting. Here, NetFix™ is the ideal choice. The net is incorporated into the matrix during the casting process but will not interfere with electrophoresis or blotting.

NetFix™ allows convenient, safe handling as the gel is reinforced with the NetFix™ layer. The gel will stay in shape while moving it. The polyester sheet, untreated, is used as backing to support horizontal gels prepared with NetFix™.

GEL-FIX™ / NetFix™ : Overview

Size	Quantity	Cat. No.
GEL-FIX™ for PAG		
245 mm x 125 mm	36 sheets	42980.01
260 mm x 125 mm	36 sheets	42999.01
260 mm x 203 mm	36 sheets	42961.01
265 mm x 125 mm	36 sheets	42993.01
265 mm x 193 mm	36 sheets	42983.01
265 mm x 213 mm	36 sheets	42939.01
50 m x 125 mm	1 roll	42966.01
50 m x 193 mm	1 roll	42968.01
200 m x 193 mm	1 roll	42996.01
GEL-FIX™ for Agarose		
80 mm x 125 mm	36 sheets	42998.01
125 mm x 125 mm	36 sheets	42997.01
258 mm x 125 mm	36 sheets	42982.01
265 mm x 125 mm	36 sheets	42981.01
265 mm x 150 mm	36 sheets	42955.01
GEL-FIX™ Covers		
245 mm x 125 mm	36 sheets	42957.01
260 mm x 203 mm	36 sheets	42971.01
265 mm x 125 mm	36 sheets	42970.01
265 mm x 193 mm	36 sheets	42969.01
280 mm x 125 mm	36 sheets	42995.01
NetFix™ for PAG		
265 mm x 125 mm	36 sheets	42775.01

■ GEL-FIX™ for PAG Size: 245 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

GEL-FIX = trademark of SERVA

Cat.No.	Size	EUR
42980.01	36 sheets	98,00

■ GEL-FIX™ for PAG Size: 260 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42999.01	36 sheets	109,00

■ GEL-FIX™ for PAG Size: 260 mm x 203 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42961.01	36 sheets	120,00

■ GEL-FIX™ for PAG Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42993.01	36 sheets	108,00

■ GEL-FIX™ for PAG Size: 265 mm x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42983.01	36 sheets	117,00

■ GEL-FIX™ for PAG Size: 50 m x 125 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42966.01	1 roll	352,00

■ GEL-FIX™ for PAG Size: 50 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42968.01	1 roll	395,00

■ GEL-FIX™ for PAG Size: 200 m x 193 mm

HS 39206300

Supporting film for casting of polyacrylamide gels; 0.18 mm polyester film, activated on both sides to bind polyacrylamide gels.

Cat.No.	Size	EUR
42996.01	1 roll	1.105,00

■ GEL-FIX™ for Agarose Size: 80 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

GEL-FIX™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42998.01	36 sheets	44,00

■ **GEL-FIX™ for Agarose** Size: 125 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42997.01	36 sheets	47,00

■ **GEL-FIX™ for Agarose** Size: 258 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42982.01	36 sheets	99,00

■ **GEL-FIX™ for Agarose** Size: 265 mm x 125 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42981.01	36 sheets	103,00

■ **GEL-FIX™ for Agarose** Size: 265 mm x 150 mm

HS 39206300

Supporting film for casting of agarose gels. 0.18 mm polyester film, activated on both sides to bind agarose gel layers covalently.

Cat.No.	Size	EUR
42955.01	36 sheets	110,00

■ **GEL-FIX™ Covers** Size: 245 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

GEL-FIX™ is a registered trademark of SERVA.

Cat.No.	Size	EUR
42957.01	36 sheets	43,00

■ **GEL-FIX™ Covers** Size: 260 mm x 203 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42971.01	36 sheets	66,00

■ **GEL-FIX™ Covers** Size: 265 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42970.01	36 sheets	51,50

■ **GEL-FIX™ Covers** Size: 265 mm x 193 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42969.01	36 sheets	51,50

■ **GEL-FIX™ Covers** Size: 280 mm x 125 mm

HS 39206300

Film for covering gel surfaces; 0.075 mm polyester film, non-binding, suitable for polyacrylamide and agarose gels.

Cat.No.	Size	EUR
42995.01	36 sheets	51,50

■ **NetFix™ for PAG** Size: 265 mm x 125 mm

HS 38220000

NetFix™ is an inert, reinforcing fabric which serves as an ideal support for gel layers. The polyester fabric is activated to bind polyacrylamide.

NetFix™ is a trademark of SERVA.

Cat.No.	Size	EUR
42775.01	36 pieces	156,00

For Amino Acids cell culture grade
see special chapter at p. 310

Staining Kits and Reagents

Staining Kits

Depending on the required sensitivity protein gels are Coomassie[®]-, silver or fluorescence stained after electrophoresis.

Besides SERVA DensiStain Blue G for rapid staining for routine applications, we offer with the SERVA HPE[™] Coomassie[®] Staining Kit (cat. no. 43396) a highly sensitive staining for proteomics. The sensitivity of the kit is comparable to silver staining.

SERVA developed as well highly sensitive silver staining kits for proteomics and CSF diagnostic. The reagents of the SERVA HPE[™] Silver Staining Kit (cat. no. 43395) are MS compatible.

SERVA HPE[™] Lightning Red (cat. no. 43300) and SERVA Lightning Red for 1D SDS PAGE (cat. no. 43401) are fluorescent dyes for rapid labelling of proteins prior to 1D - or 2D PAGE, making any staining and washing steps after electrophoresis unnecessary.

The SERVA Lightning Red for 1D SDS PAGE Kit is sufficient for 500 lanes or 1250 lanes – no matter what size of gel - mini, wide or large format - you use. Patterns of two-dimensional electrophoresis separations of protein mixtures labelled with SERVA HPE[™] Lightning Red do not show any detectable differences to unlabelled protein mixtures. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting.

If you have no access to a fluorescent imager for detection use SERVA ProteinStain Fluo-Y (cat. no. 35092) for staining of your protein gels - a fast and sensitive fluorescent protein stain for 1D or 2D SDS-PAGE. No destain step is necessary and stained gels may be directly visualized with a variety of different UV-based fluorescence imaging systems. The dye is fully compatible with mass spectrometry.

Quick Coomassie[®] Stain

HS 38220000

Storage temperature +2 °C to +8 °C

There are several benefits of our QC stain compared to other rapid and traditional Coomassie[®] stains:

Rapid: 15 min non-toxic safe 1-step stain. No organic solvents and no phosphoric acid!

Sensitive: 50 x more sensitive than other rapid stains. Lower limit is 5 ng protein standard.

Linear Range: Very low background enabling accurate quantitation of proteins.

High Resolution: Sharp protein bands that you would expect with traditional Coomassie staining. Also MS compatible!

Durable: Re-usable up to 3 times!

Shelf-Life: 1 year at room temperature. No precipitate forms over time so no shaking required!

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
GEN-QC-STAIN-1L	1 L	125,00

SERVA DensiStain Blue G Staining Solution, 2x concentrate For 20 mini gels

HS 38220000

Ready-to-use colloidal staining solution.

- For SDS PAGE gels and native PAGE gels
- For SDS PAGE gels: no fixation is required
- Extreme low background
- Allows analysis by densitometry
- Sufficient for 20 mini gels (10 x 10 cm) or 10 standard gels (14 x 16 cm up to 20 x 20 cm)
- Detects proteins down to 30 ng protein/band (BSA)
- Economical - use staining solution 3 times
- Staining procedure will take approx. 1 to 2 hours
- Stable for at least 12 months

Cat.No.	Size	EUR
35078.01	500 ml	65,00

SERVA HPE[™] Coomassie[®] Staining Kit

HS 38220000

Colloidal staining kit for highly sensitive staining of 1D and 2D gels after electrophoresis. The kit contains two components to be mixed together prior to use. Kit contains enough reagents to stain 4 large 2D HPE[™] gels. Reagents are MS compatible for down stream mass spectrometry analysis.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
43396.01	1 kit	85,00

SERVA Blue R Staining Kit



⚠ DANGER

H225-H314 ♦ WGK 1 ♦ HS 38220000

Contains 500 ml 0.2 % SERVA Blue R in ethanol and 500 ml 20 % acetic acid.

Cat.No.	Size	EUR
42531.01	1 kit	65,00

SERVA Violet 17 Staining Kit



⚠ DANGER

H314-H411 ♦ GGVS/ADR 8 III UN1805 ♦ IATA 8 III UN1805 ♦ HS 38220000

The SERVA Violet 17 Staining Kit is suited to stain all vertical and horizontal gels after isoelectric focusing (IEF). The kit is convenient, safe and easy to use and contains everything needed for fixation, staining and destaining. The colloidal stain SERVA Violet 17 gives you high sensitivity when staining IEF gels. No organic solvents are needed to apply SERVA Violet 17 staining. The SERVA Violet 17 Staining Kit contains 1 g SERVA Violet 17 and 500 ml stain solubilizer solution, ready-to-use solutions for fixation (2 x 500 ml) and destaining (500 ml) and a detailed protocol for the detection procedure. The kit contains enough stain and solutions for 5 to 10 applications (large/small gels).

Cat.No.	Size	EUR
35074.01	1 kit	108,00

SERVA Silver Staining Kit Native PAGE For 25 gels



⚠ DANGER

H301-H311-H314-H317-H351-H411 ♦ HS 38220000

Silver staining kit for easy and rapid staining of proteins after native PAGE gel electrophoresis, e.g. of IEF gels:

- contains everything needed for fixation and staining
- fast staining procedure (45 - 60 min.)
- very low background
- high sensitivity
- with detailed staining manual
- for 25 applications

Cat.No.	Size	EUR
35077.01	1 kit	175,00

■ SERVA Silver Staining Kit SDS PAGE For 25 gels



DANGER
H226-H301-H311-H314-H317-H351-H411
1 ♦ HS 38220000

Silver staining kit for easy and rapid staining of proteins after SDS PAGE gel electrophoresis:

- contains everything needed for fixation and staining
- fast staining procedure (45 - 60 min.)
- very low background
- high sensitivity
- with detailed staining manual
- for 25 applications

Cat.No.	Size	EUR
35076.01	1 kit	175,00

■ SERVA HPE™ Silver Staining Kit



DANGER
H301-H311-H331-H334-H351-H410 ♦
HS 38220000

Silver staining kit for highly sensitive silver staining of 2D gels. Kit contains reagents to stain 4 large 2D HPE™ gels. Reagents are MS compatible for downstream mass spectrometry analysis.

Cat.No.	Size	EUR
43395.01	1 kit	84,00

■ SERVA CSF Silver Staining Kit



DANGER
H225-H314-H331-H334-H411 ♦
HS 38220000

High sensitive silver staining kit for staining of up to 5 CSF gels.

Cat.No.	Size	EUR
43398.01	1 kit	145,00

■ SERVASnow Staining Kit Zinc staining solution for protein gels



DANGER
H302-H314-H361-H400-H410 ♦ HS 38220000

The SERVASnow Staining Kit is ideal for in-gel protein detection preceding many downstream applications, because it is a completely reversible staining. The simple rapid staining method results in a stained gel with an opaque milky-white background and clear protein bands. The proteins are fixed in the gel after staining, which enables the user to interrupt his assays between electrophoresis and transfer. The white background is easily removed with a Tris-EDTA buffer. The proteins are free of any dyes and can then be restained by other methods, transferred to membrane for Western Blotting or eluted from an excised gel piece.

- Fast – time required is 25 min.
- Sensitive – detection limit <10 ng protein
- Gentle – no chemical modification of the proteins
- Reversible – stain can be completely erased from the gel

Cat.No.	Size	EUR
35080.01	1 kit	69,00

■ SERVA Lightning Red for 1D SDS PAGE



DANGER
H226-H312-H319-H332-H360D ♦ HS 38220000
Storage temperature +2 °C to +8 °C

SERVA Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 1D SDS PAGE, making any staining and washing steps after electrophoresis unnecessary. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting. The labelling procedure is simple and quick:

Just mix your sample with the provided SERVA SDS sample buffer pH 8.3, after heating add the sample to 10 µl dye solution and incubate for 30 min at room temperature.

After the run detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm.

Samples of protein concentrations between 1 and 10 mg/ml can be used and no purification or concentration steps after labelling are necessary. Sufficient for 500 lanes or 1250 lanes – no matter what size of gel – mini, wide or large format – you use

- Direct detection
- No staining and washing steps after the run
- Very high sensitivity, < 0.5 ng BSA
- Wide dynamic and linear range
- No over-staining effect
- Fully MS and Western Blotting compatible

Cat.No.	Size	EUR
43401.01	500 reactions	155,00
43401.02	1.250 reactions	315,00

■ SERVA HPE™ Lightning Red



DANGER
H226-H312-H319-H332-H360D ♦ GGVSE/
ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

SERVA HPE™ Lightning Red is a fluorescent dye for rapid labelling of proteins prior to 2D PAGE, making any staining and washing steps after electrophoresis unnecessary. In addition the dye is fully compatible with mass spectrometry and other downstream methods like Western Blotting. The labelling procedure is simple and quick:

Typically use 80 pmol SERVA HPE™ Lightning Red for labelling of 1 µg protein. Incubate at 0 °C for 15 min. The labelled protein solution is directly applied on IPG strip via cup- or rehydration loading.

After the 2D run detection of labelled proteins is performed by fluorescent imager (camera or scanner) at an excitation wavelength of about 530 nm and emission filter of 610 nm with a narrow band width of 30 nm.

SERVA HPE™ Lightning Red is compatible with all additives typically used for sample solubilisation and protein extraction, including carrier ampholytes and reductants.

Alkaline conditions are sufficient, it is not required to titrate the pH to a defined value.

- Direct detection
- No staining and washing steps after the run
- Very high sensitivity, < 100 pg protein / spot
- Wide dynamic and linear range of > 10⁴
- No over-staining effects
- Fully MS and Western Blotting compatible

The kit contains 250 µg SERVA HPE™ Lightning Red dye and 25 µl DMF.

Cat.No.	Size	EUR
43400.01	1 kit	249,00

SERVA ProteinStain Fluo-Y solution, 100 x

HS 38220000

Storage temperature +2 °C to +8 °C

SERVA ProteinStain Fluo-Y is a fast and sensitive fluorescent protein stain for 1D or 2D SDS-PAGE. The 100x stock solution is simply diluted with water to its working concentration. After binding of the dye to proteins, it emits a strong fluorescence of bright golden colour. The maximum emission wave length of protein-bound dye is near 570 nm. Gels stained with SERVA ProteinStain Fluo-Y may be directly visualized with a variety of different UV-based fluorescence imaging systems.

Gels are fixed with ethanol/acetic acid solution and then directly stained with SERVA ProteinStain Fluo-Y. The whole staining procedure is completed in as little as 30 min. A destaining step is usually not necessary. But for reduction of background, simply wash gels in water for 1 – 5 min.

The bound dye is easily removed from the protein by washing the gel with sufficient water. Thus the staining is compatible with subsequent mass spectrometric analysis. Stained gels may be stored in stain solution in the dark at 2 – 8 °C.

- Highly sensitive fluorescent protein stain over a wide dynamic range
- Two-step protocol, no destain
- Directly detected by UV-imaging systems
- MS compatible

Cat.No.	Size	EUR
35092.01	10 ml	162,00

SERVA Purple

DANGER



H225-H302-H312-H319-H332 ♦ GGVSE/ADR 3 II UN1648
♦ IATA 3 II UN1648 ♦ WGK 2L ♦ HS 38220000
Storage temperature -15 °C to -25 °C

SERVA Purple is a fluorescence dye that reversibly binds to lysine, arginine, and histidine residues in proteins and peptides to yield an intensely red-fluorescent product. This unique mechanism provides sensitive quantification of proteins in 1 and 2D gels of all chemistries, on both PVDF and nitrocellulose blots and provides unparalleled compatibility with mass spectrometry. Sensitivity to as low as 50 pg/band. Linear quantification over 4 orders of magnitude. Compatible with MS, DIGE-labelling. Environmentally friendly. Easy to use.

Cat.No.	Size	EUR
43386.01	25 ml	275,00
43386.02	4 x 25 ml	995,00

Staining Reagents

We offer a broad range of high quality reagents for staining of agarose and polyacrylamide gels for protein and nucleic acid electrophoresis.

SERVA DNA Stain G (cat. no. 39803) and SERVA DNA Stain Clear G (cat. no. 39804) are a safe, non-carcinogenic alternative to traditional ethidium bromide. It is at least as sensitive as ethidium bromide and can be used in exactly the same way in agarose gel electrophoresis.

Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

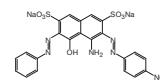
C.I.20470 ♦ C₂₂H₁₄N₆O₉S₂·Na₂ ♦ M_r 616.5 ♦
CAS [1064-48-8]

EINECS 213-903-1 ♦ WGK 2L ♦ HS 32041200

λ_{max} (0.001 % in H₂O) 620 ± 4 nm

References:

1. Wayne, F.P. et al. (1995) J. Biol. Chem: 270 (36), 21404-21410



Cat.No.	Size	EUR
12310.01	25 g	25,00

Bromophenol Blue-Na-salt

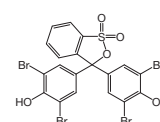
(3'-3''-5'-5''-Tetrabromophenol sulfonphthalein)

C₁₉H₉Br₄O₅S·Na ♦ M_r 692.0 ♦ CAS [34725-61-6]

EINECS 252-170-2 ♦ WGK 2L ♦ HS 32049000

Tracking dye for electrophoresis;
indicator pH 3.4 (yellow) - 4.6 (purple).

λ_{max} (0.001 % in water) 594 ± 4 nm



Cat.No.	Size	EUR
15375.01	5 g	16,50
15375.02	25 g	41,00

Coomassie® Brilliant Blue G 250

C.I. 42655 ♦ C₄₇H₄₈N₃O₇S₂·Na ♦ M_r 854.0 ♦
CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

Corresponds to SERVA Blue G (cat. no. 35050).

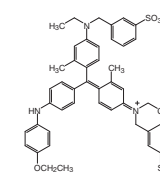
λ_{max} (0.001 %, pH 7) 585 ± 5 nm

A 1 cm/λ_{max}/1 % pH 7 ca. 500

Water max. 10.0 %

TLC corresponds

Coomassie = registered trademark of ICI Ltd.



Cat.No.	Size	EUR
17524.01	25 g	25,00
17524.02	100 g	60,00

Coomassie® Brilliant Blue R 250

C.I. 42660 ♦ C₄₅H₄₄N₃O₇S₂·Na ♦ M_r 826.0 ♦
CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

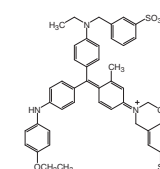
Corresponds to SERVA Blue R (cat. no. 35051).

Assay (UV) min. 75 %

Water (KF) max. 10 %

TLC corresponds

Coomassie = registered trademark of ICI Ltd.



Cat.No.	Size	EUR
17525.01	25 g	25,00
17525.02	100 g	60,00

4,5,4',5'-Dibenzo-3,3'-diethyl-9-methylthiacarbo-cyanine-bromide

(Stains-all; 1-Ethyl-2-thiazoline-2[3-(1-ethylnaphthol[1,2]-thiazoline-2-ylidene)-2-methylpropenyl]naphthol[1,2-d] thiazolium bromide)

$C_{30}H_{27}N_2S_2Br$ M_r 559.6 $\diamond$ CAS [7423-31-6]

EINECS 231-047-7 $\diamond$ WGK 1 $\diamond$ HS 29420000

Storage temperature +2 °C to +8 °C

Universal dye.

λ_{max} . 572 nm $\pm$ 4

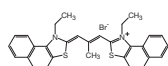
A 1 cm/0.0001 %

in methanol at λ_{max} . ca. 0.2

$\epsilon\lambda_{max}$ /methanol ca. 112 000

References:

1. Kutsch, H. & Schleich, C. (1989) Fresenius Z. Anal. Chem. 333,



Cat.No.	Size	EUR
19284.01	100 mg	29,00

Ethidium bromide research grade

(1,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; 3,8-Diamino-5-ethyl-6-phenyl-phenanthridiniumbromide; Homidium bromide)

$C_{21}H_{20}N_4^+Br^-$ M_r 394.33 $\diamond$
CAS [1239-45-8]

DANGER

H302-H330-H341 $\diamond$ EG-Index 612-278-00-6 $\diamond$ GGVSE/
ADR 6.1 I UN2811 $\diamond$ IATA 6.1 I UN2811 $\diamond$ EINECS 214-984-6 $\diamond$ WGK 2 $\diamond$
HS 29339980

Suitable for use in staining of DNA after electrophoresis. Also used as counterstain for cell nuclei in histological and cytological analysis.

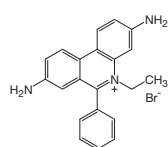
Caution:

Ethidium bromide is a powerful mutagen and moderately toxic. Gloves should be worn when working with solutions that contain this dye. For decontamination of dilute ethidium bromide containing solutions follow the method from Lunn and Samsone (1). The adsorbent SERDOLIT™ PAD-I for this procedure is available under cat. no. 42442.

Assay (titr.) min. 98.0 %

References:

1. Lunn & Samsone (1987) Ethidium bromide: Destruction and decontamination of solutions. Anal. Biochem. **162**, 453



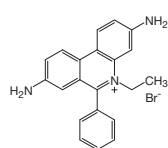
Cat.No.	Size	EUR
21238.01	1 g	18,00
21238.02	5 g	64,00

Ethidium bromide aqueous solution 1 % w/v

DANGER
H330-H341 $\diamond$ GGVSE/
ADR 6.1 III UN2810 $\diamond$

IATA 6.1 III UN2810 $\diamond$ WGK 2 $\diamond$ HS 38220000
Storage temperature +2 °C to +8 °C

Concentration: 10 mg/ml. Suitable for use in staining of DNA after electrophoresis or as counterstain of cell nuclei in histology and cytology.



Cat.No.	Size	EUR
21251.01	25 ml	29,00

Fast Green FCF

(Food Green 3)

C.I.42053 $\diamond$ $C_{37}H_{34}N_2O_{10}S_3Na_2$ M_r 808.9 $\diamond$
CAS [2353-45-9]

WARNING

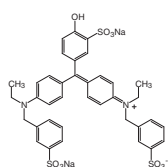
H341 $\diamond$ EINECS 219-091-5 $\diamond$ WGK 2L $\diamond$
HS 32041200

Similar to Lissamine Green SF (C.I.42095). Useful for quantitative evaluation of polyacrylamide gel electrophoretic separations (1, 2, 3).

λ_{max} . 0.0005 % in water 624 nm $\pm$ 3

References:

1. Gorovsky, M.A. et al. (1970) Anal. Biochem. **35**, 359-370
2. Bartolini, M.B. et al. (1976) Anal. Biochem. **71**, 6-13
3. Allen, R.E. et al. (1980) Anal. Biochem. **104**, 494-8



Cat.No.	Size	EUR
21295.01	5 g	22,00
21295.02	25 g	79,00

Fast Red TR-salt

(Azoic Diazo Component 11; Diazotized 2-amino-5-chlorotoluene-1,5-naphthalene disulfonate; Echtrotsalz TR)

C.I.37085 $\diamond$ $C_7H_6ClN_2 \cdot C_{10}H_6O_6S_2$ M_r 440.9 $\diamond$
CAS [51503-28-7]

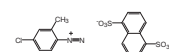
DANGER

H302-H315-H319-H335-H350 $\diamond$ EINECS 257-247-4 $\diamond$ WGK 2L $\diamond$
HS 32041600

Coupling with 1-naphthol.

References:

1. Gundlach, E. & Mülhhausen, B. (1980) J. Clin. Chem. Clin. Biochem. **18**, 603-10



Cat.No.	Size	EUR
21317.01	50 g	288,00

Methylene Blue

(Basic Blue 9; Methylene blue chloride; Methylthionine chloride)

C.I.52015 $\diamond$ $C_{16}H_{18}N_3S^+Cl^-$ M_r 319.86 $\diamond$
CAS [61-73-4]

WARNING

H302 $\diamond$ EINECS 200-515-2 $\diamond$ WGK 2L $\diamond$ HS 32049000

Standardized according to DIN 58981. Methylene blue is very sensitive to oxidation and usually contains demethylated products, called Azure A, B and C and thionine. For staining and detecting RNA in PAGE (as 0.1 % solution in water). Water soluble nuclear staining dye, mostly used for staining of blood cells.

λ_{max} . (0.0001 % in water) 665 $\pm$ 2 nm

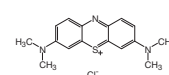
A 1 cm/ λ_{max} ./0.0001 % in water min. 0.17

Water (KF) max. 15.0 %

Sulfated ash max. 1.0 %

References:

1. Herrini & Schmidt (1988) Rapid, reversible staining of Northern Blots prior to hybridization. BioTechniques **6**, 196



Cat.No.	Size	EUR
29198.01	25 g	25,00
29198.02	100 g	75,00

Ponceau S

(Acid Red 112; Fast Ponceau 2B)

C.I.27195 $\diamond$ $C_{22}H_{12}N_4O_{13}S_4Na_4$ M_r 760.61 $\diamond$
CAS [6226-79-5]

WARNING

H315-H319-H335 $\diamond$ EINECS 228-319-2 $\diamond$ WGK 2L
 $\diamond$ HS 29270000

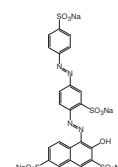
λ_{max} . 0.001 % in water 517- 523 nm

Water (KF) max. 15.0 %

A 1 cm/0.001 % in water/ λ_{max} . min. 0.355

$\epsilon\lambda_{max}$ in water min. 27 000

TLC corresponds



Cat.No.	Size	EUR
33429.01	5 g	19,00
33429.02	25 g	32,00

Ponceau S solution for electrophoresis (0.2 %)

DANGER

H314-H412 $\diamond$ GGVSE/ADR 9 III UN3082 $\diamond$ IATA 9 III UN3082 $\diamond$
WGK 2 $\diamond$ HS 38220000

0.2 % in 3 % TCA. For protein staining.

Cat.No.	Size	EUR
33427.01	500 ml	19,00

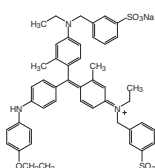
SERVA Blue G

(Acid Blue 90; COOMASSIE® Brilliant Blue G-250; Xylene Brilliant Cyanine G)
 C.I.42655 ♦ $C_{47}H_{48}N_3O_7S_2 \cdot Na$ ♦ M_r 854.0 ♦
 CAS [6104-58-1]

EINECS 228-058-4 ♦ WGK 2L ♦ HS 32041200

λ_{max} . (0.001 % pH 7) 580 - 590 nm
 A 1 cm/ λ_{max} ./1 % pH 7 min. 450
 Water max. 10.0 %
 TLC corresponds

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size	EUR
35050.01	5 g	17,00
35050.02	25 g	25,00
35050.03	100 g	60,00

SERVA Blue G Solution for Blue Native, 1%

HS 38220000

Solution for preparing the blue stained cathode running buffer for Blue Native gel electrophoresis.

SERVA Blue G (cat. no. 35050): 10 g/l in aqua dest.

Cat.No.	Size	EUR
42538.01	20 ml	23,00

SERVA Blue R

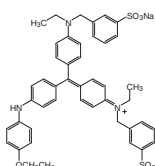
(Acid Blue 83; COOMASSIE® Brilliant Blue R-250)
 C.I.42660 ♦ $C_{45}H_{44}N_3O_7S_2 \cdot Na$ ♦ M_r 826.0 ♦
 CAS [6104-59-2]

EINECS 228-060-5 ♦ WGK 2L ♦ HS 32041200

R stands for „reddish“.

λ_{max} . (0.0002 % pH 7) 558 - 562 nm
 A 1 cm/ λ_{max} ./0.0002 % pH 7 min. 0.06
 $\epsilon_{\lambda_{max}}$. pH 7 min. 25 000
 Water max. 10.0 %
 TLC corresponds

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size	EUR
35051.01	5 g	17,00
35051.02	25 g	25,00
35051.03	100 g	60,00

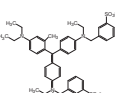
SERVA Blue W soluble in water

(Acid Blue 15)
 C.I.42645 ♦ $C_{42}H_{46}N_3O_6S_2 \cdot Na$ ♦ M_r 776.0 ♦
 CAS [5863-46-7]

EINECS 227-511-3 ♦ WGK 2L ♦ HS 32041200

A triphenylmethane dye, more lipophilic methyl homologue of SERVA Violet R. Suitable for round gels of PAGE, also for flat gels 0.1 - 1.0 mm thick.

λ_{max} . (0.001 % pH 7) 566 - 564 nm
 A 1 cm/ λ_{max} ./0.001 % pH 7 min. 0.5



Cat.No.	Size	EUR
35053.02	25 g	25,00
35053.03	100 g	60,00

SERVA DNA Stain G



WARNING
 H315-H319 ♦ HS 38220000

SERVA DNA Stain G is a safer alternative to traditional ethidium bromide stain for detecting nucleic acid in agarose gels. It is at least as sensitive as ethidium bromide and can be used in exactly the same way in agarose gel electrophoresis. SERVA DNA Stain G can be added to the gel solution, working dilution is 1:20.000 to 1:50.000. SERVA DNA Stain G emits green fluorescence when bound to DNA or RNA. It has one fluorescence excitation maximum at ca. 300 nm and another at ca. 450 nm when bound to nucleic acid. SERVA DNA Stain G is non-carcinogenic and according to the AMES test it causes significantly fewer mutations than ethidium bromide.

Cat.No.	Size	EUR
39803.01	1 ml	55,00
39803.02	5 x 1 ml	245,00

SERVA DNA Stain Clear G



WARNING
 H315-H319 ♦ HS 38220000

SERVA DNA Stain Clear G is a new, non-carcinogenic, much more sensitive and convenient version of our SERVA DNA Stain G. It can be used instead of highly carcinogenic ethidium bromide for detecting nucleic acid in agarose gels.

SERVA DNA Stain Clear G emits green fluorescence when bound to DNA or RNA. It has two secondary fluorescence excitation peaks (ca. 270 nm and 295 nm) and one strong excitation peak centered around 490 nm. The fluorescence emission is similar to EtBr at ca. 530 nm when bound to nucleic acid.

Pre-casting and post-staining protocols are applicable.

1 ml of this stain is sufficient for 17 - 25 L of agarose gel.

Cat.No.	Size	EUR
39804.01	1 ml	82,00
39804.02	5 x 1 ml	360,00

SERVA ProteinStain Fluo-R powder

$C_{72}H_{42}N_6Na_4RuS_6$ ♦ M_r 1664.5

WGK 2L ♦ HS 28439090

SERVA ProteinStain Fluo-R is a highly sensitive fluorescent dye for detection of proteins in e. g. SDS-PAGE, native PAGE or 2D gels. The dye does not interfere with immunodetection. Therefore you can stain your gel with SERVA ProteinStain Fluo-R and then proceed with Western Blotting receiving a copy of your gel on the membrane.

The dye can as well be used for pre-staining, just use it in the loading buffer instead of bromophenol blue or other dyes.

It is as sensitive as silver staining, but has superior staining properties, which makes it the first choice for proteomic research. The dye has a good linearity, high contrast and is compatible with MS/MS analysis. The staining can be as well combined with silver staining and DIGE.

The dye is easily soluble in water. Just dissolve 5 mg in 3 L water to receive a 1 μ M staining solution. Or prepare a 20 mM stock solution by dissolving 5 mg in 150 μ l water. The dye is best excited with UV light of wave length 473/488 nm. Excitation with laser light of wave length 532 nm is as well possible, but less sensitive.

Cat.No.	Size	EUR
35090.01	5 mg	98,00
35090.02	25 mg	398,00

SERVA ProteinStain Fluo-R solution

HS 38220000

Storage temperature +2 °C to +8 °C

Concentrate of SERVA ProteinStain Fluo-R (cat. no. 35090). Dilute 1:1000 to receive a 1 μ M staining solution.

SERVA ProteinStain Fluo-R is a highly sensitive fluorescent dye for detection of proteins in e. g. SDS-PAGE, native PAGE or 2D gels. The dye does not interfere with immunodetection. Therefore you can stain your gel with SERVA ProteinStain Fluo-R and then proceed with Western Blotting receiving a copy of your gel on the membrane.

The dye can as well be used for pre-staining, just use it in the loading buffer instead of bromophenol blue or other dyes.

It is as sensitive as silver staining, but has superior staining properties which makes it the first choice for proteomic research. The dye has a good linearity, high contrast and is compatible with MS/MS analysis. The staining can be as well combined with silver staining and DIGE.

The dye is best excited with UV light of wave length 473/488 nm. Excitation with laser light of wave length 532 nm is as well possible, but less sensitive.

Cat.No.	Size	EUR
35091.01	1 ml	79,00

■ **SERVA Violet 17**

(Acid Violet 17; COOMASSIE® Violet R-150)
 C.I.42650 ♦ $C_{41}H_{44}N_3O_3S_2 \cdot Na$ ♦ M_r 761.9 ♦
 CAS [4129-84-4]

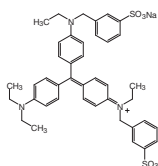


H411 ♦ #i#GGVSE/ADR 9 III UN3077 ♦
 IATA 9 III UN3077 ♦ EINECS 223-942-6 ♦ WGK 3L ♦
 HS 32041200

For staining of proteins in PAGE.

λ_{max} . (0.001 % in water) 544 - 550 nm
 A 1 cm/ λ_{max} ./0.001 % in water min. 0.8
 Water (KF) max. 10.0 %

COOMASSIE = TM of ICI Ltd.



Cat.No.	Size	EUR
35072.01	5 g	19,00
35072.02	25 g	25,00
35072.03	100 g	60,00

■ **Silver nitrate analytical grade**

$AgNO_3$ ♦ M_r 169.89 ♦ CAS [7761-88-8]



DANGER
 H272-H314-H400-H410 ♦ MAK/TRK
 0,01E ♦ EG-Index 047-001-00-2 ♦ GGVSE/
 ADR 5.1 II UN1493 ♦ IATA 5.1 II UN1493 ♦ EINECS 231-853-9 ♦ WGK 3L ♦
 HS 28342980

Assay min. 99.9 %

Cat.No.	Size	EUR
35110.01	25 g	50,00
35110.02	100 g	150,00

■ **Sodium Thiosulfate Pentahydrate for Silver Staining analytical grade**

$Na_2S_2O_3 \cdot 5H_2O$ ♦ M_r 248.2 ♦ CAS [10102-17-7]

EINECS 231-867-5 ♦ WGK 1L ♦ HS 28323000

Assay (titr.) min. 99.5 %
 Heavy metals (Pb) < 5 ppm
 Cu < 5 ppm
 Fe < 5 ppm

Cat.No.	Size	EUR
30218.01	10 g	12,00

Buffer Solutions and Reagents

SERVA's ready-to-use buffer solutions save you time and labor and guarantee best results. Only high quality, application proved reagents are used. In addition, we offer a comprehensive range of high quality reagents for making your own solutions according to your needs.

■ **Acetic acid 100 % analytical grade**

$C_2H_4O_2$ ♦ M_r 60.05 ♦ CAS [64-19-7]



DANGER
 H226-H314 ♦ GGVSE/ADR 8 II UN2789 ♦ IATA 8 II UN2789
 ♦ EINECS 200-580-7 ♦ WGK 1 L ♦ HS 29152100

Assay (GC) min. 99.8 %
 Density (20 °C) 1.05

Cat.No.	Size	EUR
45633.01	1 L	19,00
45633.02	2,5 L	40,00

■ **ε-Aminocaproic acid analytical grade**

(6-Amino-n-hexanoic acid)

$C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [60-32-2]

EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

References:

1. Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11
2. Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3

Cat.No.	Size	EUR
12548.03	100 g	31,00

■ **Ammonium persulfate electrophoresis grade**

$(NH_4)_2S_2O_8$ ♦ M_r 228.2 ♦ CAS [7727-54-0]



DANGER
 H272-H302-H315-H319-H334-H335 ♦ EG-
 Index 016-060-00-6 ♦ GGVSE/ADR 5.1 III UN1444
 ♦ IATA 5.1 III UN1444 ♦ EINECS 231-786-5 ♦ WGK 1L ♦ HS 28334000

Polymerisation catalyst for acrylamide/bisacrylamide polymerisation. Suitable for standard and high resolution electrophoresis techniques.

Assay (titr.) min. 99.0 %
 pH 5% in water 3.2 - 3.9

Cat.No.	Size	EUR
13376.01	50 g	13,00
13376.02	250 g	17,00

■ **Anode fluid 3 for IEF**

HS 38220000

Storage temperature +2 °C to +8 °C

Contains 0.17 g L-aspartic acid and 0.18 g L-glutamic acid in 50 ml water. Recommended for general use with SERVLYT™ PRECOTES™

Cat.No.	Size	EUR
42984.03	50 ml	12,50

■ **ASB-14** research grade

(Amidosulfobetaine-14; 3-[N,N-Dimethyl(3-myristoylamino)propyl]ammonio]propanesulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-14 shows better protein solubilization properties than CHAPS, by which the identification of previously undetected membrane proteins was enabled.

CMC 8 mM (20 – 25 °C)
Purity (HPLC) min. 98.0 %

References:

1. Carroll, J., et al., J. Biol. Chem. **277**, 50311
2. Herbert, B., (1999) Electrophoresis **20**, 660
3. Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20757.01	1 g	32,00
20757.02	5 g	115,00

■ **ASB-16** research grade

(Amidosulfobetaine-16; 3-[N,N-Dimethyl-N-(3-palmitamidopropyl)ammonio]propane-1-sulfonate)
HS 34021900

Zwitterionic detergent. Useful for solubilizing proteins for 2D-analysis. ASB-16 shows better protein solubilization properties than CHAPS and in some cases than ASB-14, resulting in improved detection of membrane proteins by 2D-electrophoresis.

CMC 8 mM (20 – 25 °C)
Assay (HPLC) min. 98.0 %

References:

1. Flatman, P. W., et al., (2005), J. Physiol. **563**, 421
2. Herbert, B., (1999) Electrophoresis **20**, 660
3. Chevallet, M., et al., (1998) Electrophoresis **19**, 1901

Cat.No.	Size	EUR
20758.01	1 g	32,00
20758.02	5 g	115,00

■ **ASB-C7BzO** research grade

(C7BzO; 3-(4-Heptyl)phenyl-3-hydroxypropyl-dimethylammonio]propanesulfonate; 3-(4-Heptyl)-phenyl-3-hydroxypropyldimethylammoniosulfobetaine)
HS 34021900

Zwitterionic detergent. Useful for solubilizing and stabilizing integral membrane proteins by disrupting aggregates. Especially well-suited to protein extraction for proteomic applications.

Assay (HPLC) min. 96.0 %

References:

1. Luche, S., et al., (2003), Proteomics **3**, 249
2. Tastet, C., et al., (2003), Proteomics **3**, 111
3. Rabilloud, T., et al., (1999) Electrophoresis **20**, 3603

Cat.No.	Size	EUR
20759.01	1 g	95,00
20759.02	5 g	330,00

■ **Benzyltrimethyl-n-hexadecyl ammonium chloride** analytical grade

(16-BAC; Benzylhexadecyldimethylammonium chloride; Cetalkonium chloride; Cetyldimethylbenzylammonium chloride)
CAS [122-18-9]



DANGER
H302-H312-H314-H400 ♦ GGVSE/
ADR 8 III UN3261 ♦ IATA 8 III UN3261 ♦

HS 34021900

Cationic surfactant used in acidic PAGE, especially 2D electrophoresis (1), improving resolution of proteins with similar molecular weight. It has been used to separate yeast mitochondrial membrane proteins (2).

Assay min. 99.0 %

References:

1. Nothwang, H. G. & Schindler (2009) J. Methods Mol. Biol. **528**, 269-77
2. Braun, R. J., et al. (2009) Methods Mol. Biol. **528**, 83-107

Cat.No.	Size	EUR
14836.01	25 g	34,00
14836.02	100 g	110,00

■ **2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol** analytical grade

(Bis(2-hydroxyethyl)imino-tris(hydroxy methyl)methane; BISTRIS)
 $C_8H_{19}NO_5$ ♦ M_r 209.24 ♦ CAS [6976-37-0]

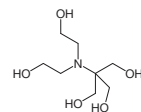
EINECS 230-237-7 ♦ WGK 1 ♦ HS 29221985

Buffering substance.

Assay (titr.) min. 99.0 %
A 1 cm/10 % in water
280 nm max. 0.1
Iron (Fe) max. 5 ppm
Lead (Pb) max. 3 ppm
pH 10 % in water 9.4 - 10.4
pKa 20 6.46

References:

1. Daabo, M. & Bates, R. (1970) J. Phys. Chem. **74**, 702-5



Cat.No.	Size	EUR
15107.03	100 g	52,00
15107.04	250 g	121,00

■ **BlueSlick™**

DANGER
H225-H319-H336 ♦ MAK/TRK 500 mg/m³; 200 ml/m³
for isopropanol

♦ GGVSE/ADR 3 II UN1993 ♦
IATA 3 II UN1993 ♦ WGK 1 ♦
HS 38220000

Non-toxic BlueSlick™ is the alternative to silane-containing products and is non-irritant to eyes. It can be handled outside of a fume-hood. Suitable to all applications in electrophoresis (DNA sequencing, SDS PAGE, IEF PAGE). It does not affect the separation.

Supplied in a safety spray bottle made from PE, free of propellant (CFC). One spray dose dispenses a quantity of 0.7 ml BlueSlick™ reagent. BlueSlick™ coating will last for 3 to 4 electrophoresis applications. Ready-to-use reagent for treatment of glass plates; non-toxic, prevents adhesion of gels to glass.



BlueSlick™ is a trademark of SERVA.

Cat.No.	Size	EUR
42500.01	250 ml	78,00

■ **Boric acid** electrophoresis grade

H_3BO_3 ♦ M_r 61.83 ♦ CAS [10043-35-3]



DANGER
H360Df ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m³ ♦ EG-Index 005-007-00-2
♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Boric acid is used to prepare TBE buffer, the most frequently used buffer for DNA/RNA electrophoresis (1). Application tested quality for electrophoresis.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 15 ppm

References:

1. Ogden, R. C. & Adams, D. A. (1987) Methods Enzymol. **152**, 61 - 87

Cat.No.	Size	EUR
15166.01	250 g	16,50
15166.02	1 kg	32,00

n-Butanol analytical grade

(1-Butanol)

 $C_4H_{10}O$ ♦ M_r 74.12 ♦ CAS [71-36-3]

DANGER

H226-H302-H315-H318-H335-H336 ♦ EG-Index 603-004-00-6 ♦ GGVSE/ADR 3 III UN1120 ♦ IATA 3 III UN1120 ♦ EINECS 200-751-6 ♦ WGK 1 L

Assay (GC) min. 99.0 %
 Density (20 °C) 0.810
 Water max. 500 ppm
 Acidity max. 0.001 %
 Residue on evaporation max. 50 ppm

Cat.No.	Size	EUR
45628.01	1 L	25,00
45628.02	2,5 L	51,00

Cathode fluid 10 for IEF

DANGER

H314-H317-H334 ♦ GGVSE/ADR 8 III UN3267 ♦ IATA 8 III UN3267 ♦ WGK 2 ♦ HS 38220000

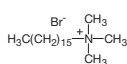
Storage temperature +2 °C to +8 °C

Contains 0.22 g L-arginine base, 0.18 g L-lysine base, 6.0 ml ethylene diamine in 50 ml water. Recommended for general use with SERVLYT™ PRECOTES™.

Cat.No.	Size	EUR
42986.03	50 ml	12,50

Cetyltrimethylammonium-bromide cryst. pure

(CTAB; Cetrimide C16; Cetrinonum bromide; Hexadecyltrimethyl ammonium-bromide; Palmityltrimethylammonium-bromide)



WARNING

H302-H315-H319-H400-H410 ♦ GGVSE/ADR 9 III UN3077 ♦ IATA 9 III UN3077 ♦ EINECS 200-311-3 ♦ WGK 3L ♦ HS 29239000

Cationic surfactant used instead of SDS in electrophoresis of highly charged and membrane protein subunits (1). Surfactant for modifying silica for HPLC (2). Suitable for cell permeabilization (3) and DNA isolation (4). Increases the efficiency of chemiluminescence (5, 6).

Assay (titr.) min. 99.0 %

References:

- Eley, M. et al. (1979) Anal. Biochem. **92**, 411-9
- Hansen, S.H. et al. (1981) J. Chromatogr. **210**, 453-60
- Joshi, M.S. et al. (1989) Biotechnol. Lett. **11**, 349-52
- Milligan, B.G. (1989) Plant Mol. Biol. Rep. **7**, 144-9
- Abdel-Latif, M.S. & Guibault, G.G. (1989) Anal. Chim. Acta **221**, 11-7
- Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
16530.04	100 g	18,00
16530.02	500 g	56,00

3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate research grade

(CHAPS)

 $C_{32}H_{58}N_2O_6S$ ♦ M_r 614.9 ♦ CAS [75621-03-3]

WARNING

H315-H319-H335 ♦ WGK 1 ♦ HS 29239000

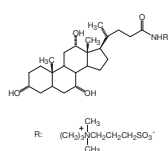
Zwitterionic surfactant. Particularly useful for solubilizing and electrophoresis of membrane proteins (1 - 5). Suitable also for enzyme immunoassay (6).

Assay (from N) min. 97.0 %

References:

- Hjelmeland, L.M. (1980) Proc. Natl. Acad. Sci. USA **77**, 6368-70
- Naldini, L. et al. (1990) Biochemistry **29**, 5153-60
- Kierdaszuk, B. & Eriksson, S. (1990) Biochemistry **29**, 4109-114
- Bonfils, C. & Combalbert, J. (1990) Electrophoresis **11**, 182-6
- Ambar, J. et al. (1989) Eur. J. Pharmacol. **170**, 119-20
- Leblond, F.A. et al. (1989) J. Immunol. Methods **124**, 71-5

Cat.No.	Size	EUR
17038.01	1 g	19,00
17038.02	5 g	42,00
17038.03	25 g	160,00
17038.04	100 g	575,00

**Digitonin** analytical grade

(Digitin)

 $C_{56}H_{92}O_{29}$ ♦ M_r 1229.34 ♦ CAS [11024-24-1]

DANGER

H301-H311-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦ EINECS 234-255-6 ♦ WGK 3L ♦ HS 29389010

USP. Naturally occurring surfactant especially useful for receptor solubilization. Frequently applied as hemolysis reagent and for permeabilization of certain types of cells e.g. blood platelets, hepatocytes, yeast or tumor cells. Also used for the estimation of cholesterol.

References:

- Scallan, D.J. & Dietert, S.E. (1969) J. Cell Biol. **40**, 802-13
- Grigoriadis, D.E. et al. (1989) Endocrinology **125**, 3068-77
- Hermann, P. et al. (1988) Photosynthetica **22**, 411-22
- Boschmann, M. et al. (1989) Biomed. Biochim. Acta **48**, 645-52
- Mooney, R.A. (1988) in Meth. Enzymol. **159**, (Corbin, J.D. & Johnson, R.A., Eds.) 193-202, Academic Press, Inc.

Cat.No.	Size	EUR
19550.01	500 mg	97,00
19550.02	1 g	170,00

Digitonin water soluble research grade $C_{56}H_{92}O_{29}$ ♦ M_r 1229.34 ♦ CAS [11024-24-1]

DANGER

H301-H311-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦ EINECS 234-255-6 ♦ WGK 3L ♦ HS 29389010

Turbidity: 1 g is suspended in 20 ml water and dissolved by heating to 95 - 98 °C for 15 minutes.

Cat.No.	Size	EUR
19551.01	250 mg	89,00
19551.02	1 g	289,00

Dithiothreitol electrophoresis grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)

 $C_4H_{10}O_2S_2$ ♦ M_r 154.25 ♦ CAS [3483-12-3]

WARNING

H302-H315-H319-H332-H335 ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DTT is effective in sample buffers for reducing protein disulfide bonds prior to SDS-PAGE (1). Tested for use in reduced SDS-PAGE. Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %
 MP 40 - 45 °C

References:

- Cleland, W.W. (1964) Biochemistry **3**, 480-2

Cat.No.	Size	EUR
20711.01	1 g	21,00
20711.02	5 g	53,00
20711.03	25 g	175,00

**N-Dodecyl-N,N-dimethylammonio-3-propane sulfonate** research grade

(Sulfobetaine SB 12; Ralufon DL; N,N-Dimethyl-N-dodecyl-N-(3-sulfopropyl)ammonium betaine)

 $C_{17}H_{37}NO_3S$ ♦ M_r 335.55 ♦ CAS [14933-08-5]

EINECS 239-002-3 ♦ WGK 1 ♦ HS 34021900

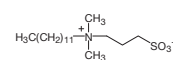
Zwitterionic surfactant for solubilizing membrane proteins without denaturation. Applicable over a wide pH-range.

Assay (titr.) min. 98.0 %

References:

- Gonenne, A. & Ernst, R. (1978) Anal. Biochem. **87**, 28-38
- Dekker, J.P. et al. (1988) Biochim. Biophys. Acta **936**, 307-18
- Mazhul, L.A. et al. (1988) Mol. Genet. Mikrobiol. Virusol. **12**, 42-7

Cat.No.	Size	EUR
20761.02	10 g	27,00
20761.03	50 g	69,00



Dodecyl-β-D-maltoside research grade

(Lauryl-β-D-maltoside)

 $C_{24}H_{46}O_{11}$ ♦ M_r 510.63 ♦ CAS [69227-93-6]

WGK 1 ♦ HS 34021300

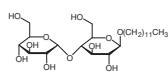
Storage temperature +2 °C to +8 °C

Non-ionic detergent; CMC 0.16-0.19 mM. Especially suitable for the activation of cytochrome C oxidase. Frequently used for the investigation of photosynthetic membranes.

Assay (from C) min. 99.0 %
 $[\alpha]_{20}^{\circ}C/D$ (c=1 in H_2O). +46 ° to +50 °

References:

1. Rosevaer, P. et al. (1980) Biochemistry **19**, 4108-15
2. Musatov, A. et al. (1990) Biochem. Int. **21**, 563-71
3. Dekker, J.P. et al. (1989) FEBS Lett. **254**, 150-4
4. Koenig, B. et al. (1989) FEBS Lett. **257**, 163-6



Cat.No.	Size	EUR
20780.01	100 mg	25,00
20780.02	500 mg	40,00
20780.03	1 g	65,00

Dodecylsulfate-Na-salt electrophoresis grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4SNa$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER
 H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦ EINECS 205-788-1 ♦
 HS 34029090

Ultrapure SDS, suitable for standard and high resolution electrophoresis techniques.

Assay (GC) min. 99.0 %
 A 1cm/10 % in water
 260 nm max. 0.1
 280 nm max. 0.05

Cat.No.	Size	EUR
20771.01	100 g	26,00
20771.02	500 g	104,00

Dodecylsulfate-Na-salt 2xcryst., analytical grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4SNa$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER
 H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Assay (GC) min. 99.0 %
 C_{10} - and C_{14} -sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water
 260 nm max. 0.2
 280 nm max. 0.08

Cat.No.	Size	EUR
20763.01	100 g	25,00
20763.02	500 g	98,00

Dodecylsulfate-Na-salt 2x cryst., premium grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4SNa$ ♦ M_r 288.38 ♦ CAS [151-21-3]

DANGER
 H228-H302-H311-H315-H319-H335 ♦ GGVSE/

ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.0 %
 A 1 cm/10 % in water
 260 nm max. 0.15
 280 nm max. 0.05

Cat.No.	Size	EUR
20770.01	100 g	30,00
20770.02	500 g	120,00

Dodecylsulfate-Na-salt in Pellets research grade

(SDS; Sodium laurylsulfate; Sodium dodecyl sulfate)

 $C_{12}H_{25}O_4SNa$ ♦ M_r 288.38 ♦ CAS [151-21-3]**WARNING**

H228-H302-H312-H315-H319-H335 ♦ GGVSE/
 ADR 4.1 III UN1325 ♦ IATA 4.1 III UN1325 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

Same quality as Cat. No. 20760 but pressed in small pellets thus avoiding the irritant dust of the powder form.



Assay (GC) min 99.0 %
 C_{10} and C_{14} - sulfate (GC) max. 1.0 %
 A 1 cm/10 % in water:
 260 nm max. 1.5
 280 nm max. 1.0

Cat.No.	Size	EUR
20765.01	100 g	13,00
20765.02	250 g	20,00
20765.03	1 kg	56,00

Ethanol denaturated 96 % C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]**DANGER**

H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
 EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC) min. 96.0 %
 Methyl ethyl ketone 1 %
 Aldehyde max. 30 ppm
 Acidity max. 10 ppm
 Methanol max. 1000 ppm
 Residue on evaporation max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

Ethanol undenaturated 96 % analytical grade C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]**DANGER**

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

Assay (GC) 94.0 - 96.0 %
 Water (KF) 4.0 - 6.0 %

Cat.No.	Size	EUR
11094.01	1 L	61,00
11094.02	2,5 L	135,00

Ethylenediamine tetraacetic acid-Na₂-salt
electrophoresis grade

(EDTA; Ethylenedinitrilo-tetraacetic acid)

 $C_{10}H_{14}N_2O_8Na_2 \cdot 2H_2O$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ HS 29212900

EDTA, a cation chelator, is used in DNA electrophoresis buffers to inhibit metal-requiring nucleases. Application tested quality for electrophoresis.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11281.01	100 g	17,50
11281.02	250 g	24,00
11281.03	1 kg	64,00

■ **Ethylenediamine tetraacetic acid** analytical grade

(EDTA; Ethylenedinitrilo-tetraacetic acid)

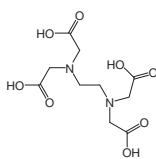
 $C_{10}H_{16}N_2O_8$ ♦ M_r 292.3 ♦ CAS [60-00-4]**WARNING**

H319 ♦ EG-Index 607-429-00-8 ♦

EINECS 200-449-4 ♦ WGK 2L ♦ HS 29212900

Assay (titr.)

min. 99.0 %



Cat.No.	Size	EUR
11278.01	100 g	11,50
11278.02	1 kg	40,50

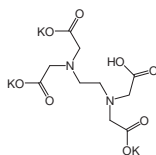
■ **Ethylenediamine tetraacetic acid- K_3 -salt** analytical grade(EDTA- K_3 -salt; Versene- K_3 -salt) $C_{10}H_{13}N_2O_8 \cdot K_3 \cdot 2H_2O$ ♦ M_r 442.55 ♦ CAS [65501-24-8]**WARNING**

H319-H412 ♦ EINECS 241-543-5 ♦ WGK 2L ♦

HS 29212900

Assay (titr.)

min 99.0 %



Cat.No.	Size	EUR
11277.02	100 g	32,50

■ **Glycerol from plant**

(Glycerin)

 $C_3H_8O_3$ ♦ M_r 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Ph. Eur.

Assay (titr.)

min. 99.5 %

Heavy metals (Pb)

max. 5 ppm

Refractive index

1.470 - 1.475



Cat.No.	Size	EUR
23176.01	1 L	33,50

■ **Glycine** electrophoresis grade $C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Glycine is a component of Tris-Glycine (cat. no. 42530) and Tris-Glycine-SDS running buffers (cat. no. 42529) for polyacrylamide gel electrophoresis and as well of Towbin buffer for Western Blots (cat. no. 42558).

Tested for use in electrode buffers for PAGE and in transfer buffers for Western Blots.

Assay (titr.)

98.5 – 101.0 %

Heavy metals (Pb)

max. 10 ppm

Chloride (Cl)

max. 70 ppm

Cat.No.	Size	EUR
23391.01	500 g	27,00
23391.02	1 kg	42,00
23391.03	5 kg	148,50

■ **Glycine** premium grade

(Aminoacetic acid; Glycocol)

 $C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.)

98.5 - 101.0 %

Heavy metals (Pb)

max. 10 ppm

Cat.No.	Size	EUR
23395.01	500 g	25,00
23395.02	1 kg	38,00
23395.03	5 kg	135,00

■ **IEF Sample Buffer (2x)** sterile filtered

HS 38220000

Storage temperature +2 °C to +8 °C

The SERVA IEF sample buffer is suited to all vertical and horizontal IEF applications and systems. The SERVA IEF sample buffer is supplied as 2x concentrate. It is sterile filtered, beneficial to long shelf life and absence of contaminants. The 2x concentrate is suited to liquid and solid samples. Simply mix the liquid sample 1:1 with the buffer or dissolve a solid sample in the buffer first and dilute with water 1:1. When performing IEF in the presence of urea mix the sample with the buffer and add solid urea or use concentrated urea solution.

The buffer contains 4 % SERVALYT™ 4 - 9 T, 30 % glycerol and 0.005 % phenol red.

Cat.No.	Size	EUR
42537.01	20 ml	21,00

■ **Iodoacetamide** research grade C_2H_4INO ♦ M_r 185.0 ♦ CAS [144-48-9]**WARNING**

H315-H317-H319-H335 ♦ EINECS 205-630-1 ♦ WGK 2

♦ HS 29241900

Storage temperature +2 °C to +8 °C

Alkylating agent for use in protein sample preparation applications. For carboxymethylation of proteins.

Assay (from N)

min. 99.0 %

References:1. Gurd, F.R. (1967) Methods Enzymol. **11**, 532-41

Cat.No.	Size	EUR
26710.01	5 g	16,00
26710.02	25 g	44,00

■ **IPG Chamber Cleaner**

HS 34022090

IPG Chamber Cleaner is a pH-neutral, non-toxic, highly active cleaning material. It has been specifically formulated for effectively removing protein deposits from the IPG strip holder, lids, etc. of a First-Dimension Isoelectric Focusing Unit, e.g. IEF100.

Cat.No.	Size	EUR
43399.01	1 L	35,00

■ **Laemmli Buffer 10x, for SDS-PAGE**

HS 38220000

Running buffer for SDS-PAGE. Supplied as 10 x concentrate. Contains 0.25 M Tris, 1.92 M glycine and 1 % SDS in aqueous solution.

Cat.No.	Size	EUR
42556.01	2 L	48,00
42556.04	10 L	125,00

■ **Laemmli Sample Buffer 2x, for SDS PAGE**

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2x concentrate. Contains 126 mM Tris/Cl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42526.01	20 ml	18,00
42526.02	5 x 20 ml	76,00

■ **Malachite green oxalate** research grade

(Basic Green 4)

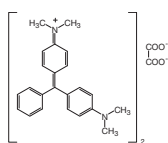
C.I.42000 ♦ (C₂₃H₂₅N₃)₂·C₂O₄²⁻·2C₂H₄O₄ ♦ M_r 927 ♦ CAS [2437-29-8]DANGER
H302-H318-

H361d-H400-H410 ♦ EG-Index 602-096-00-5 ♦

GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 219-441-7 ♦ WGK 3L ♦ HS 32041300

Suitable for bacteriology and histological staining. For fifty-fold amplification of the Lowry protein assay.

λ_{max} 0.0001 % in H₂O 618 ± 2 nm**References:**1. Sargent, M.G. (1987) Anal. Biochem. **163**, 476-81

Cat.No.	Size	EUR
28335.03	25 g	16,00

■ **3-Mercapto-1,2-propanediol**

(Thioglycerol)

C₃H₈O₂S ♦ M_r 108.16 ♦ CAS [96-27-5]

DANGER

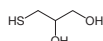
H302-H311-H315-H319-H332-H335 ♦ GGVSE/ADR 6.1 III UN2810

♦ IATA 6.1 III UN2810 ♦ EINECS 202-495-0 ♦ WGK 3L ♦

HS 29309099

Filled under argon.

Assay (GC) min. 99.0 %



Cat.No.	Size	EUR
28637.01	50 ml	85,00

■ **2-Mercaptoethanol** electrophoresis grade

(Monothiethylene glycol)

C₂H₆OS ♦ M_r 78.13 ♦ CAS [60-24-2]

DANGER

GGVSE/ADR 6.1 II UN2966 ♦ IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦

WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. Tested for use in sample buffers for SDS-PAGE.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
28626.01	50 ml	17,00
28626.02	500 ml	53,00

■ **3-Methacryloxypropyltrimethoxysilane (Bind-Silane)**

(Polyfix 1000)

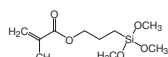
C₁₀H₂₀O₅Si ♦ M_r 248.4 ♦ CAS [2530-85-0]

WARNING

H315-H319-H335 ♦ EINECS 219-785-8 ♦ WGK 1 ♦ HS 29310099

Storage temperature +2 °C to +8 °C

Assay (GC) 98.0 - 100.0 %



Cat.No.	Size	EUR
28739.01	100 ml	64,00

■ **Methanol** analytical gradeCH₄O ♦ M_r 32.04 ♦ CAS [67-56-1]

DANGER

H225-H301-H311-H331-H370 ♦ EG-

Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦

IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Assay (GC) min. 99.8 %

Density (20 °C) 0.7915

Water max. 1000 ppm

Acidity max. 10 ppm

Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

■ **Morpholinoethane sulfonic acid** analytical grade

(MES)

C₆H₁₃NO₃S ♦ M_r 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

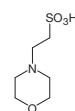
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.1

pH 10 % in water 2.5 - 4.0

References:1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
2. Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29834.02	100 g	42,00
29834.04	500 g	165,00
29834.03	1 kg	305,00

■ **Morpholinopropane sulfonic acid** analytical grade

(MOPS)

C₇H₁₅NO₃S ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

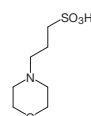
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.08

pH 10 % in water 3.0 - 5.0

References:1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00

■ **Native Anode Buffer for BN/CN (10x)**

HS 38220000

Running buffer for the use as anode buffer in Blue or Clear Native PAGE.

Supplied as 10x concentrate. Contains 500 mM BisTris-HCl (pH 7.0).

Cat.No.	Size	EUR
42535.01	1 L	79,00

■ **Native Cathode Buffer for BN/CN (10x)**

HS 38220000

Running buffer for the use as cathode buffer in Blue or Clear Native PAGE.

Supplied as 10x concentrate. Contains 500 mM Tricine, 150 mM BisTris.

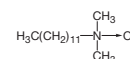
Cat.No.	Size	EUR
42536.01	500 ml	45,00

■ **NDSB-201** research grade

(Non-Detergent Sulfobetaine 201; PPS; 3-(1-Pyridino)-1-propane sulfonate; 1-(3-Sulfopropyl)pyridinium betain)

C₈H₁₁NO₃S ♦ CAS [15471-17-7]

HS 29333999



A non-detergent sulfobetaine with zwitterionic properties. Easily removed by dialysis. Similar to zwitterionic detergent, but does not form micelles due to too short hydrophobic side chains. It prevents protein aggregation and facilitates the renaturation of chemically and thermally denatured proteins. Suitable for solubilization of proteins for proteomic applications.

Assay (titr.) min. 98.0 %

References:1. Goldberg, M., E., et al., (1996), Folding & Design **1**, 21
2. Vuillard, L., et al., (1995), Biochem. J. **305**, 337

Cat.No.	Size	EUR
20762.01	50 g	18,00
20762.02	250 g	60,00

■ **PGM Anode Buffer**

HS 38220000

Contains 0.60 g DL-Threonine. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size	EUR
36370.01	600 mg	23,00

■ **PGM Cathode Buffer**

HS 38220000

Contains 0.56 g L-Histidine Base. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size	EUR
24835.01	560 mg	22,50

■ **PGM Cathode Buffer**

HS 38220000

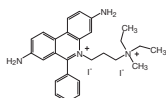
Contains 0.56 g L-Histidine Base. For a 0.1 M solution dissolve dry powder in 50 ml distilled water.
Store solution at 4 °C.

Cat.No.	Size	EUR
24835.01	560 mg	22,50

■ **Propidium iodide research grade**

(3,8-Diamino-5-(3-(diethylmethylammonio)propyl)-6-phenylphenanthridinium diiodide)

$C_{27}H_{34}N_4^{2+}2I^-$ ♦ M_r 668.4 ♦ CAS [25535-16-4]

**DANGER**

H301-H315-H319-H331-H335-H

340 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦

EINECS 247-081-0 ♦ WGK 2 ♦ HS 29239000

Storage temperature +2 °C to +8 °C

For selective labeling of DNA in dead cells; used in tumor diagnosis (flow cytometry) (1, 2). For the study of micronuclear morphology of protozoa (3).

References:

1. Valet, G. et al. (1987) *Blut* **49**, 37-43
2. ibid. (1984) *J. Clin. Chem. Clin. Biochem.* **22**, 935-42
3. Fox, D.P. et al. (1987) *Stain Technol.* **62**, 217-20

Cat.No.	Size	EUR
33671.01	25 mg	65,00
33671.02	100 mg	195,00

■ **Sample Buffer for Blue Native (2x)**

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Blue Native PAGE. Supplied as 2x concentrate.
Contains 1 M 6-aminocaproic acid, 100 mM BisTris-HCl (pH 7.0), 100 mM NaCl, 20 % glycerol, 0.1 % SERVA Blue G.

Cat.No.	Size	EUR
42533.01	20 ml	23,00

■ **Sample Buffer for Clear Native (2x)**

HS 38220000

Storage temperature -15 °C to -25 °C

Sample buffer for Clear Native PAGE. Supplied as 2x concentrate.
Contains 100 mM NaCl, 100 mM imidazole, 4 mM 6-aminocaproic acid, 2 mM EDTA, 0.02 % Ponceau S, 20 % glycerol.

Cat.No.	Size	EUR
42534.01	20 ml	23,00

■ **SDS Solution, 20 % molecular biology grade****WARNING**

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered

Composition:

SDS (cat. no. 39574): 200 g/L

Cat.No.	Size	EUR
39575.01	100 ml	30,00
39575.02	1 L	79,00

■ **SDS Solution, 20 % electrophoresis grade****WARNING**

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

Ultrapure SDS solution, suitable for standard and high resolution electrophoresis techniques.

Composition:

SDS (cat. no. 20771): 200 g/L

Cat.No.	Size	EUR
20768.01	100 ml	18,00
20768.02	500 ml	45,00
20768.03	1 L	74,00

■ **Semi-dry Blotting Buffer Kit for Western Blotting****DANGER**

H301-H311-H331-H370 ♦ GGVSE/ADR 6.1 II UN2810 ♦

IATA 6.1 II UN2810 ♦ WGK 1 ♦ HS 38220000

For Western Blotting in the „Semi-dry“ System. Ready-to-use kit, consisting of 3 components:

Buffer I (conc. anode buffer): 0.3 M Tris and 20 % methanol in aqueous solution.

Buffer II (diluted anode buffer): 0.03 M Tris and 20 % methanol in aqueous solution.

Buffer III (cathode buffer): 0.025 M Tris/HCl (pH 9.4), 0.04 M 6-aminocaproic acid and 20 % methanol in aqueous solution.

Cat.No.	Size	EUR
42559.01	3 x 500 ml	101,00

■ **SERDOLIT® MB analytical grade**

HS 39140000

Mixed-bed ion exchanger with exhaustion indicator composed of SERDOLIT® Blue (OH⁻-form) and SERDOLIT® CS-2 (H⁺-form) in a ratio at approx. 1.5:1 (v/v); ready-to-use, suitable for demineralizing water.

Capacity min. 0.8 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 55 - 65 %

Cat.No.	Size	EUR
45500.03	500 g	105,00
45500.02	1 kg	195,00

■ **SERVA Blue G Solution for Blue Native, 1%**

HS 38220000

Solution for preparing the blue stained cathode running buffer for Blue Native gel electrophoresis.

SERVA Blue G (cat. no. 35050): 10 g/l in aqua dest.

Cat.No.	Size	EUR
42538.01	20 ml	23,00

■ **SERVA PRiME™ DNA Sample Buffer (3x)**

HS 38220000

Storage temperature +2 °C to +8 °C

Although higher agarose concentrations can be used to separate small DNA fragments, separation on a polyacrylamide gel results in better resolution and separation. Due to a defined pore size, polyacrylamide gels have a resolving capability of 0.2 % difference in DNA length. Additionally, polyacrylamide gels can be loaded with up to 10 µg nucleic acid without any loss in resolution.

For optimal separation of small DNA fragments between 10 bp and 3000 bp, we developed the SERVA PRiME DNA sample buffer. It is a high density sample buffer optimized for non-denaturing DNA gel electrophoresis on SERVAGel™ TG PRiME vertical mini gels.

Cat.No.	Size	EUR
42544.01	10 ml	25,00

■ **SERVA Tris-Glycine Native Electrophoresis Buffer (10x)**

HS 38220000

Storage temperature +2 °C to +8 °C

Running buffer for native PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine.

Cat.No.	Size	EUR
42530.01	1 L	30,00

■ SERVA Tris-Glycine Native Sample Buffer (2x)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for native PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42528.01	20 ml	18,00

■ SERVA Tris-Glycine/SDS Electrophoresis Buffer (10x)

HS 38220000

Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 250 mM Tris, 1.92 M glycine, 1 % SDS.

Cat.No.	Size	EUR
42529.01	1 L	28,00

■ SERVA Tris-Glycine/SDS Sample Buffer (2x)

(Tris-Glycine/SDS sample buffer)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS PAGE. Supplied as 2 x concentrate. Contains 126 mM Tris/HCl (pH 6.8), 20 % glycerol, 4 % SDS and 0.02 % bromophenol blue.

Cat.No.	Size	EUR
42527.01	20 ml	18,00

■ SERVA Tris-MOPS/SDS Electrophoresis Buffer (20x)

(MOPS; Tris-MOPS/SDS running buffer)

HS 38220000

Running buffer for SDS-PAGE. Optimized formulation to improve separation performance for high molecular proteins, especially when used together with SERVAGel™ Neutral pH 7.4 (cat. no. 43220 and 43221) precast gels. Supplied as 20 x concentrate. Contains 1.2 M Tris (pH 8.4), 0.6 M MOPS and 2 % SDS.

Cat.No.	Size	EUR
42561.01	1 L	79,00

■ SERVA Tris-Tricine/SDS Electrophoresis Buffer (10x)

(Tris-Tricine/SDS running buffer)

HS 38220000

Running buffer for SDS PAGE. Supplied as 10 x concentrate. Contains 1 M Tris, 1 M Tricine and 1 % SDS.

Cat.No.	Size	EUR
42552.01	1 L	78,00

■ SERVA Tris-Tricine/SDS Sample Buffer (2x)

HS 38220000

Storage temperature +2 °C to +8 °C

Sample buffer for SDS Page. Supplied as 2 x concentrate.

Contains 900 mM Tris/HCl (pH 8.45), 24 % glycerol, 4 % SDS, 0.015 % SERVA Blue G and 0.005 % phenol red.

Cat.No.	Size	EUR
42551.01	20 ml	21,00

■ SERVAGel™ IEF Running Buffer Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Running Buffer Kit for SERVAGel™ IEF 3-10.

Contains:

SERVA IEF anode buffer (1x, powder for 5 l buffer)

SERVA IEF cathode buffer 3-10 (10x, powder for 200 ml buffer)

Cat.No.	Size	EUR
42539.01	1 kit	79,00

■ Silicone anti-foam emulsion, 30 %

(30 % Dimethicone)

HS 39100000

USP. Dow Corning® 30 % polydimethylsiloxane in water; contains traces of emulsifiers derived from plant.

Cat.No.	Size	EUR
35119.01	100 ml	21,00
35119.02	500 ml	47,00

■ Sodium carbonate analytical grade

Na₂CO₃ ♦ M_r 106.0 ♦ CAS [497-19-8]

WARNING

H319 ♦ EG-Index 011-005-00-2 ♦ EINECS 207-838-8 ♦ WGK 1L ♦ HS 28362000

Assay (titr.)

min. 99.5 - 100.5 %

Heavy metals (Pb)

max. 50 ppm

Cat.No.	Size	EUR
30181.02	1 kg	22,00

■ Sodium chloride cryst. research grade

NaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.)

99.0 - 100.5 %

Heavy metals (Pb)

≤ 5 ppm

Cat.No.	Size	EUR
30183.01	1 kg	14,00

■ Sodium Thiosulfate Pentahydrate for Silver Staining

analytical grade

Na₂S₂O₃·5H₂O ♦ M_r 248.2 ♦ CAS [10102-17-7]

EINECS 231-867-5 ♦ WGK 1L ♦ HS 28323000

Assay (titr.)

min. 99.5 %

Heavy metals (Pb)

< 5 ppm

Cu

< 5 ppm

Fe

< 5 ppm

Cat.No.	Size	EUR
30218.01	10 g	12,00

■ 20xSSC buffer molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected. 20 x concentrated aqueous solution. Commonly used buffer in transfer, blocking and hybridization in both Northern and Southern Blotting

Composition:

NaCl (cat. no. 39781)

175.32 g/L (3 M)

Na₃-citrate x 2 H₂O

88.23 g/L (0.3 M)

(cat. no. 38642)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (pp. 7.46-7.47, 9.38-9.39, 9.50)
2. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), Suppl. 40, A.2.5

Cat.No.	Size	EUR
42555.01	1 L	27,00
42555.04	10 L	149,00

■ Starch (Smithies)

(Starch hydrolyzed; Toronto-starch)

CAS [9005-25-8]

EINECS 232-679-6 ♦ WGK 1L ♦ HS 35051090

For starch gel electrophoresis.

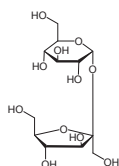
Cat.No.	Size	EUR
35370.01	100 g	45,00
35370.02	500 g	145,00
35370.03	2 kg	510,00

■ **Sucrose** research grade

(Saccharose; Cane sugar)
 $C_{12}H_{22}O_{11}$ ♦ M_r 342.3 ♦ CAS [57-50-1]
 EINECS 200-334-9 ♦ HS 29400000

For gradient centrifugation, bacteriology and electrophoresis.

Assay (HPLC) min. 98.0 %
 A 1 cm/50 % in water
 260 nm max. 0.3
 280 nm max. 0.25
 Heavy metals (Pb) max. 1 ppm



Cat.No.	Size	EUR
35580.02	1 kg	15,00
35580.03	5 kg	46,00
35580.04	25 kg	199,00

■ **Sulfobetaine SB 3-10** research grade

(Caprylyl sulfobetaine; N-Decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate; 3-(Decyldimethylammonio)propanesulfonate inner salt)
 HS 34021900

Zwitterionic detergent for solubilization of membrane proteins in their native state.

Micellar average weight 12 600
 Aggregation number 41
 CMC 25 – 40 mM (20 – 25 °C)
 Assay (HPLC) min. 98.0 %

References:

- Hochstein, L.I., et al., (1987) Biochem. Biophys. Res. Commun. **147**, 295-300
- Schulz, W., et al., (1989) J. Steroid Biochem. **32**, 581-590

Cat.No.	Size	EUR
20756.01	5 g	80,00
20756.02	25 g	276,00

■ **TAE buffer (10x)**

 **WARNING**
 H315-H319 ♦ WGK 2 ♦ HS 38220000

10 x concentrated aqueous solution.

TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 48.46 g/l (0.4 M)
 EDTA- Na_2 -salt (cat. no. 11280) 3.72 g/l (0.01 M)
 Acetic acid 12.01 g/l (0.2 M)

References:

- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42553.01	1 L	25,00
42553.04	10 L	149,00

■ **TAE buffer (50x)** molecular biology grade

HS 38220000

50x concentrated aqueous solution.

DNase/RNase not detected. TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 242.3 g/l
 EDTA- Na_2 2H₂O (cat. no. 11280) 18.6 g/l
 Acetic acid 60.05 g/l

Cat.No.	Size	EUR
42549.01	1 L	43,00

■ **TBE buffer (10x)**

DANGER
 H315-H319-H360DF ♦ WGK 1 ♦ HS 38220000

10 x concentrated aqueous solution.

TBE buffer is widely used for the electrophoresis of nucleic acids and has a higher buffer capacity than TAE. It can be used for DNA and RNA polyacrylamide and agarose gel electrophoresis.

Composition:

Tris (cat. no. 37180) 107.78 g/l (0.89 M)
 EDTA- Na_2 -salt (cat. no. 11280) 7.44 g/l (0.02 M)
 Boric acid (cat. no. 15165) 55.0 g/l (0.89 M)

References:

- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42557.01	2 x 500 ml	29,50

■ **TE Buffer (100x)**

HS 38220000

100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/l (1 M)
 EDTA- Na_2 -salt (cat. no. 11280) 37.22 g/l (0.1 M)
 pH 8.0 ± 0.2

Cat.No.	Size	EUR
42554.01	1 L	26,50

■ **N,N,N',N'-Tetramethyl-ethylenediamine** for electrophoresis

(TEMED; TD)

$C_6H_{16}N_2$ ♦ M_r 116.21 ♦ CAS [110-18-9]



DANGER
 H225-H302-H314-H332 ♦ EG-Index 612-103-00-3
 ♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Filled under argon.

Assay (GC) 99.0 %

Cat.No.	Size	EUR
35930.01	10 ml	14,00
35930.02	25 ml	19,00

■ **N,N,N',N'-Tetramethyl-ethylenediamine**

(TEMED; TD)

$C_6H_{16}N_2$ ♦ M_r 116.21 ♦ CAS [110-18-9]



DANGER
 H225-H302-H314-H332 ♦ EG-Index 612-103-00-3
 ♦ GGVSE/ADR 3 II UN2372 ♦ IATA 3 II UN2372 ♦

EINECS 203-744-6 ♦ WGK 1L ♦ HS 29212900

Assay (GC) min. 98.5 %

Cat.No.	Size	EUR
35925.01	100 ml	15,00
35925.02	500 ml	49,00

■ **Trichloroacetic acid** analytical grade

$C_2HCl_3O_2$ ♦ M_r 163.4 ♦ CAS [76-03-9]



DANGER
 H314-H410 ♦ EG-Index 607-004-00-7
 ♦ GGVSE/ADR 8 II UN1839 ♦ IATA 8 II UN1839 ♦

EINECS 200-927-2 ♦ WGK 2L ♦ HS 29154000

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
36910.01	100 g	15,00
36910.03	500 g	38,00

■ **Trichloroacetic acid, 20 % solution**

DANGER
 H314-H335-H336-H412 ♦ GGVSE/ADR 8 III UN2564 ♦
 IATA 8 III UN2564 ♦ WGK 2S ♦ HS 38220000

Aqueous solution. TCA (cat. no. 36910): 200 g/L

Cat.No.	Size	EUR
36913.01	500 ml	30,00
36913.02	1 L	45,00

Tris-(2-carboxyethyl)phosphine hydrochloride

electrophoresis grade

$C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ HS 29420000

Storage temperature +2 °C to +8 °C

Suitable for reducing protein disulfide bonds prior to polyacrylamide gel electrophoresis. More stable and effective than DTT. Tested for use in sample buffers for SDS-PAGE.

Assay (TLC) min. 99.0 %

Cat.No.	Size	EUR
36971.01	1 g	52,00
36971.02	5 g	190,00

Tris-(2-carboxyethyl)phosphine hydrochloride

(TCEP)

$C_9H_{16}ClO_6P$ ♦ M_r 286.7 ♦ CAS [51805-45-9]



DANGER

H315-H318-H335 ♦ WGK 1 ♦ HS 29420000

Storage temperature +2 °C to +8 °C

Water-soluble and odorless reagent for selective and fast reduction of disulfides. Does not react with other functional groups of proteins. Unreactive towards many common alkylating reagents, so reductions have been carried out simultaneously with alkylations. More stable and effective than DTT. The strength of the phosphorus-oxygen bond makes the reaction irreversible. Dilute solutions of TCEP (1 mM) react rapidly at room temperature. Suitable also in mass spectrometry applications.

Assay (TLC) min. 99.0 %

References:

1. Kirkley, T.L. (1989) Anal. Biochem. **180**, 231-36
2. Burns, J.A. (1991) J. Org. Chem. **56**, 2648-50
3. Han, J. a. Han, G.Y. (1994) Anal. Biochem. **220**, 5-10

Cat.No.	Size	EUR
36970.01	1 g	50,00
36970.02	5 g	185,00
36970.03	10 g	325,00

Tris(hydroxymethyl)aminomethane electrophoresis grade

(TRIS)



$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ HS 29221985

Ultrapure quality, tested for use in electrode buffers for PAGE and in transfer buffers for Western blots.

Assay (titr.) min. 99.9 %

A 1 cm 10 % in water

260 nm

max. 0.15

280 nm

max. 0.15

430 nm

max. 0.07

Heavy metals (Pb)

max. 1 ppm

pH (5 % in water)

10.0 – 11.5

Cat.No.	Size	EUR
37181.01	500 g	33,00
37181.02	1 kg	48,00
37181.03	2,5 kg	97,00

Tris(hydroxymethyl)aminomethane molecular biology grade

(TRIS)

$C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

DNase, RNase, Protease not detected.

Assay (titr.) min. 99.9 %

Heavy metals (Pb)

max. 1 ppm

Iron

max. 1 ppm

Arsenic (As)

max. 1 ppm

Magnesium (Mg)

max. 1 ppm

Cat.No.	Size	EUR
37186.01	100 g	18,00
37186.02	500 g	49,00
37186.03	1 kg	77,00
37186.04	2,5 kg	186,00

Tris(hydroxymethyl)methylglycine electrophoresis grade

(Tricine)

$C_6H_{13}NO_5$ ♦ M_r 179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ HS 29221985

In the tricine gel system developed by Schaeffer and von Jagow (1), tricine replaces glycine in the running buffer. This results in higher resolution of low molecular weight proteins and of smaller peptides.

Ultrapure quality, tested for use in electrode buffers for PAGE.

Assay (titr.) min. 99.0 %

A 1 cm/0.1 M in water

260 nm

max. 0.04

280 nm

max. 0.02

Heavy metals (Pb)

max. 5 ppm

pH (10 % in water)

4.6 – 5.2

References:

1. Schagger, H & von Jagow, G. V. (1987) Anal. Biochem. **166**, 368 - 379

Cat.No.	Size	EUR
37196.01	100 g	40,00
37196.02	500 g	143,00

Triton® X-100

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER

H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

HLB 13.5. For the turbidimetric determination of phosphate

(1). Can be used in place of Nonidet NP-40. One of the most frequently used surfactants for the isolation, purification and analysis of membrane components. Suitable for solubilisation of hydrophobic proteins prior to Blue Native PAGE.

Water (KF)

max. 1.0 %

A 1 cm /320 nm 1 % in water

max. 0.4

A 1 cm /360 nm 1 % in water

max. 0.04

® Registered trademark of Union Carbide.

References:

1. Eibl, H. & Lands, W.E.M. (1969) Anal. Biochem. **30**, 51-7
2. See, Y.P. & Fitt, P.S. (1972) Anal. Biochem. **49**, 430-35
3. Campoy, F.J. et al. (1989) Biochem. Soc. Trans. **17**, 676-7
4. Gonzales-Manas, J.M. et al. (1990) Eur. J. Biochem. **188**, 673-8
5. Bayens, W.R.G. et al. (1990) Anal. Chim. Acta **234**, 187-92
6. Krause, F. (2006) Electrophoresis **27**, 2759-81

Cat.No.	Size	EUR
37240.01	500 g	16,00
37240.02	5 kg	79,00

Urea electrophoresis grade

(Carbamide; Carbonyl diamide)

CH_4N_2O ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ HS 29241900

For complete solubilization and unfolding of proteins, urea is included in the sample solution for 2 D-PAGE at a concentration of at least 8 M. It is also used to denature nucleic acids in sequencing gels. Application-tested quality.

Assay (from N) 99.0 - 100.5 %

Heavy metals

< 10 ppm

Cat.No.	Size	EUR
24525.01	250 g	17,00
24525.02	1 kg	32,00

Urea molecular biology grade

(Carbamide; Carbonyl diamide)

CH_4N_2O ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected

Assay (from N)

99.0 - 100.5 %

A 1 cm/8 M in water

260 nm

< 0.15

280 nm

< 0.1

Heavy metals (as Pb)

< 10 ppm

Iron (Fe)

max 0.5 ppm

Cat.No.	Size	EUR
39305.01	500 g	21,50

BlueLine - Vertical System

■ BlueVertical™ PRiME™ Mini Slab Gel Unit

HS 90272000

The BlueVertical™ PRiME™ is a dual mini tank system with the option to operate one or two precast gels. It accommodates SERVAGel™ TG PRiME™, all other types of SERVAGel™ and all other commercially available precast gels with an outer cassette dimension of 10 x 10 x 0.7 cm. The fixture of the inner core unit has been re-engineered to provide four robust clamps (two on both sides) which fix two precast gel cassettes properly and tightly in their correct position. This ensures that the inner buffer chamber is leak-free separated from the outer buffer compartment.

Separation of proteins by SDS PAGE, native PAGE and IEF can be carried out as well as separation of nucleic acids by denaturing or native PAGE. The outer buffer tank works as a heat sink (passive cooling by buffer), sufficient for most applications mentioned above. You may run two SERVAGel™ TG PRiME™ simultaneously at 300 Volt. The run will be completed in about 35 minutes without warming up the buffer significantly. If additional cooling is required (e. g. for IEF applications), a magnetic stirrer can be applied to help circulation of buffer fluid.

The unit consists of an outer buffer tank and the inner core running unit. Mounting of precast gels does not require any tedious clamping but is a matter of seconds. The outer buffer tank is made from rugged transparent acrylic – watch your gel while running! A safety lid closes the top, giving the unit a very compact and robust design. Little bench space is required. The unit is, of course, in accordance with the European safety guidelines (CE mark). When quality becomes an issue – choose BlueVertical™ PRiME™.



Specifications:

Inner buffer volume	200 ml
Outer buffer volume	450 ml
Voltage (max)	500 Volt
Current (max)	250 mA
Operating temperature	4 °C - 65 °C
Electrodes	Platinum wire (0.2 mm, 99.99 % pure)
Dimensions	16 x 15.6 x 9.5 cm (WxHxD)
Weight	1.2 kg

Cat.No.	Size	EUR
BV 104	1 piece	695,00

Accessories for BlueVertical BV102-System

Please note: BV102 is no longer available since 2012 - replaced by BlueVertical™ PRiME™

Combs available for BlueVertical 102

Combs and spacers are made from high quality HIPS (high impact polystyrene).

Cat.No.	No. of wells	Comb thickness (mm)	Well width (mm)	Well depth (mm)	Sample* volume (µl)
BV 102-10-0.75	10	0.75	5.5	15	50
BV 102-15-1.0	15	1.0	3.0	15	40
BV 102-15-1.5	15	1.5	3.0	15	60
BV 102-10-1.5	10	1.5	5.5	15	100
BV 102-10-0.75	10	0.75	5.5	15	50
BV 102-15-0.75	15	0.75	3.0	15	25
BV 102-P1-1.5	1 Ref. 1 Prep.	1.5 1.5	3.0 54	15 15	60 1050
BV 102-P2-1.5	2 Ref. 1 Prep.	1.5 1.5	3.0 48.3	15 15	50 950

* approx. sample volume (± 10 %) which can be loaded into a well

■ Casting Adaptor for BV 102

HS 90279050

To be used in combination with the inner core unit of the BlueVertical Mini Slab Gel System BV 102. For casting one or two gels.

Cat.No.	Size	EUR
BV 102 CA	1 piece	175,00

■ Comb for BlueVertical™ 102 0.75 mm, 10 samples

HS 39269097

Comb thickness: 0.75 mm
 Number of wells: 10
 Well width: 5.5 mm
 Well depth: 15 mm
 Sample volume: 50 µl

Cat.No.	Size	EUR
BV 101-10-0.75	1 piece	35,00

■ Comb for BlueVertical™ 102 0.75 mm, 15 samples

HS 39269097

Comb thickness: 0.75 mm
 Number of wells: 15
 Well width: 3.0 mm
 Well depth: 15 mm
 Sample volume: 25 µl

Cat.No.	Size	EUR
BV 101-15-0.75	1 piece	35,00

■ Comb for BlueVertical™ 102 1.0 mm, 10 samples

HS 39269097

Comb thickness: 1.0 mm
 Number of wells: 10
 Well width: 5.5 mm
 Well depth: 15 mm
 Sample volume: 70 µl

Cat.No.	Size	EUR
BV 101-10-1.0	1 piece	35,00

■ **Comb for BlueVertical™ 102 1.0 mm, 15 samples**

HS 39269097

Comb thickness:	1.0 mm
Number of wells:	15
Well width:	3.0 mm
Well depth:	15 mm
Sample volume:	40 µl

Cat.No.	Size	EUR
BV 101-15-1.0	1 piece	35,00

■ **Comb for BlueVertical™ 102 1.5 mm, 10 samples**

HS 39269097

Comb thickness:	1.5 mm
Number of wells:	10
Well width:	5.5 mm
Well depth:	15 mm
Sample volume:	100 µl

Cat.No.	Size	EUR
BV 101-10-1.5	1 piece	35,00

■ **Comb for BlueVertical™ 102 1.5 mm, 15 samples**

HS 39269097

Comb thickness:	1.5 mm
Number of wells:	15
Well width:	3.0 mm
Well depth:	15 mm
Sample volume:	60 µl

Cat.No.	Size	EUR
BV 101-15-1.5	1 piece	35,00

■ **Comb for BlueVertical™ 102 1.5 mm, 1 sample, 1 reference**

HS 39269097

Comb thickness:	1.5 mm
Number of wells:	1 Ref., 1 Prep.
Well width:	3.0 mm, 54 mm
Well depth:	15 mm, 15 mm
Sample volume:	60 µl, 1050 µl

Cat.No.	Size	EUR
BV 101-P1-1.5	1 piece	34,00

■ **Comb for BlueVertical™ 102 1.5 mm, 1 sample, 2 references**

HS 39269097

Comb thickness:	1.5 mm
Number of wells:	2 Ref., 1 Prep.
Well width:	3.0 mm, 48.3 mm
Well depth:	15 mm, 15 mm
Sample volume:	50 µl, 950 µl

Cat.No.	Size	EUR
BV 101-P2-1.5	1 piece	34,00

■ **Dummy Plate for BV 102**

HS 39269097

Cat.No.	Size	EUR
BV 102-7	1 piece	39,00

■ **Glass Plate, notched, for BV 102**

HS 70031990

Cat.No.	Size	EUR
BV 102-10	4 pieces	96,00

■ **Glass Plate, plain, for BV 102**

HS 70031990

Cat.No.	Size	EUR
BV 102-9	4 pieces	57,00

■ **SERVA Cellophane Sheets II**

HS 39207100

Format: 140 x 133 mm. For drying of mini vertical slab gels (up to 10 x 10 cm), as run in BlueVertical Mini Slab Gel System (BV 102).

Cat.No.	Size	EUR
42524.01	200 sheets	21,50

■ **SERVA Dryer Frame Kit**

HS 90330000

For drying of mini vertical slab gels (to up to 10 x 10 cm). Containing 2 dryer frames (cat. no. 42521.01) and 200 cellophane sheets (cat. no. 42522.01).

Cat.No.	Size	EUR
42523.01	1 kit	59,00

■ **Spacer Set for BlueVertical™ 102 0.75 mm**

HS 39269097

Cat.No.	Size	EUR
BV 101-0.75	2 pieces	17,00

■ **Spacer Set for BlueVertical™ 102 1.0 mm**

HS 39269097

Cat.No.	Size	EUR
BV 101-1.0	2 pieces	17,00

■ **Spacer Set for BlueVertical™ 102 1.5 mm**

HS 39269097

Cat.No.	Size	EUR
BV 101-1.5	2 pieces	17,00

■ **Wedges (1 x 2 units incl. screws)**

HS 90272000

Two wedges incl. screws. Central part of the unique, leak-free casting system of the Blue Vertical Mini Slab Gel System (BV 102).

Cat.No.	Size	EUR
BV 102-11	1 piece	65,00

BlueLine - Tower System

The **SERVA HPE™ Tower** is a multiple flatbed polyacrylamide electrophoresis gel system for 1 and 2-dimensional separations, providing second to none resolution, reproducibility and sensitivity – the first true High Performance Electrophoresis system.

The HPE™ FlatTop Tower consists of four horizontal electrophoresis chambers, which are built as movable drawers into a metal housing. The **precast HPE™** gels, which are less than 1 mm thin and filmbacked, are protected from light during the run. No glass plates are used. The gels are placed on aluminum oxide ceramics cooling plates, which ensures very efficient heat dissipation and therefore straight electrophoretic migration in each gel.

The HPE™ tower also has an inbuilt pump for optimum cooling water flow through the plates. The system does not need buffer chambers; instead fibre wicks are soaked with concentrated electrophoresis buffers and placed between the gel edges and the electrode wires, which are mounted into the lids. The electrode positions are adjustable to the two different gel sizes. A sophisticated electronic sensor system delivers information about the electric field distribution between the HPE™ gels, and indicates which drawer chambers are in use. The HPE™ tower is run with an external power supply (cat. no. HPE-PSP) and a thermostatic circulator.

The breakthrough technology of HPE means:

- HPE™ gels are 650 µm thick - optimized for efficient cooling and staining, without showing overloading effects for highly abundant proteins. To ensure complete transfer of proteins from the first into the second dimension gel, the composition of the polyacrylamide matrix of the 2D HPE™ gels is modified and allows the application of the IPG strip in a sample trench.
- Efficient temperature control in the HPE™ tower and precise production of HPE™ gel polymerisation guarantees highly reliable gels and reproducible results.
- Shelf-life of the HPE™ gels is one year, and they remain stable during the storage period. A buffer system based on Tris-Tricine-SDS - storage pH value of the gel buffer is 6.9 - is preventing alkaline hydrolysis. During electrophoresis the pH value in the gel raises to pH 8.5 for fast migration of the zones. The tricine in the buffer allows separation reaching below 6 kDa in HPE™ gels, unlike the 10 kDa in standard Laemmli gels.
- The buffers are ready to use. The equilibration buffer is provided with the HPE™ gels - therefore less variables than conventional electrophoresis and quick to use.
- All state-of-the art fluorescent detection (including DIGE) can be applied using HPE gels polymerised on non-fluorescent film-backing (NF). The HPE™ tower protects gels from light during the run.
- Short set-up and fast running time - up to 8 gels can be run per day..
- 2D HPE™ gel shows markedly more protein spots than conventional 2D gel (20 - 50 % depending on sample type).

- No large buffer volumes – no time wasted cleaning glass plates and buffer chambers
- An environmentally friendly process - no need to handle acrylamide monomer and no contaminated fluid waste to dispose of.
- Film-backed gels do not swell or shrink during staining. Automated spot picking is easier from a film-backed HPE™ gel than from conventional slab gels or gels on glass plates. Fluorescent stained gels can be post-stained with visible dyes for manual spot picking.
- The effectiveness of mass spec and analysis is increased. The higher protein concentration in the spots of an HPE™ gel also improves the yield of tryptic digested peptides because of the higher protein-to polyacrylamide gel ratio.

■ HPE™ Tower System

HS 90272000

The HPE™ Tower System allows electrophoretic separations in up to four horizontal gels at the same time. It is used for 1D and 2D electrophoresis gels, where multiple runs are an important demand. Structurally, the HPE™ Tower consists of four horizontal electrophoresis chambers, which are built as movable drawers into a metal housing.

The HPE™ Tower and the HPE™ gels have been developed together as a system, in order to achieve better results than can be obtained with conventional SDS polyacrylamide gel electrophoresis (PAGE) technology. The precast HPE™ gels, which are less than 1 mm thin and film-backed, are protected from light during the run. No glass plates are used. They are placed on aluminum oxide ceramic cooling plates, which ensures very efficient heat dissipation and therefore straight electrophoretic migration in each gel.

Content:

HPE™ FlatTop Tower (HPE-T02), HPE™ Power Supply Package (HPE-PSP) and HPE™ Cooling Unit (HPE-CU1).



Cat.No.	Size	EUR
HPE-TS2	1 piece	inquire

■ HPE™ FlatTop Tower

HS 90272000

The HPE™ FlatTop Tower allows electrophoretic separations of up to four horizontal flatbed gels at the same time. It is used for 1D and 2D electrophoresis gels. For more information please refer to „HPE™ Tower System“ (cat. no. HPE-TS1).

Cat.No.	Size	EUR
HPE-T02	1 piece	inquire

■ HPE™ Cooling Unit

HS 90272000

Cooling unit for FlatTop tower.

Cat.No.	Size	EUR
HPE-CU1	1 piece	2.995,00

■ HPE™ Power Supply Package

HS 90272000

The HPE™ Power Supply Package complements the HPE™ Power Supply 1500 with a netbook and a power supply control software to regulate and monitor the electrophoretic run (Volt, Watt, Ampere).

Cat.No.	Size	EUR
HPE-PSP	1 piece	2.045,00

■ HPE™ Power Supply 1500

HS 90272000

Programmable electrophoresis power supply suitable for HPE™ FlatTop tower. Voltage 30 V - 1500 V; current 0.5 mA - 400 mA; power 1 W - 300 W.

Cat.No.	Size	EUR
HPE-PS1	1 piece	1.795,00

■ BluePower Control Kit V1.0

HS 90272000

The BluePower Supply Control Kit provides the communication between a SERVA BlueLine™ Power Supply and an IBM compatible personal computer (Windows 98 and higher) via an USB-serial converter and a documentation software.

It has basically two functions:

1. Monitoring of voltage, current, and power during the time course of an electrophoresis run
2. Loading, storage, and documentation of multistep power supply settings

The Power Supply Control Kit can be used with the following SERVA power supplies: BluePower™ 200x4, BluePower™ 500x4, BluePower™ 1500x4, BluePower™ 3000x4, and HPE Power Supply 1500.

Content:

High-speed USB-serial converter, gender changer for serial port, USB stick containing: software package, power supply programs for various applications; instruction manual

Cat.No.	Size	EUR
BP-PCSV01	1 kit	295,00

■ Steel Tray + Grid + Lid

HS 90272000

Tray for cold and hot staining, 150 mm x 300 mm x 60 mm for all 125 mm x 260 mm gels.

Cat.No.	Size	EUR
HPE-A19	1 piece	370,00

■ Steel Tray Large + Grid + Lid

HS 90272000

For cold and hot staining, 220 mm x 280 mm x 60 mm for all large and DALT gels.

Cat.No.	Size	EUR
HPE-A20	1 piece	625,00

■ Steel Tray Multi 6 For up to 6 large gels, with 6 grids

HS 90272000

The MultiStainer is a stainless steel vessel with lid designed to stain up to six gels. The staining solution is stirred using a magnetic stir bar underneath the grid to ensure efficient mixing. The gels are positioned on stainless steel grids well separated from each other for simultaneously staining. Suitable for both cold and hot Coomassie® staining and for both backed and unbacked (slab) gels up to 20 cm x 26 cm in size.

Coomassie = registered trademark of ICI Ltd.

Cat.No.	Size	EUR
HPE-A21	1 piece	1.195,00

■ ScanFrame

HS 90272000

For scanning film-backed gels. The ScanFrame prevents curling of gel edges during long-time scanning like DIGE gels.

Cat.No.	Size	EUR
HPE-A22	1 piece	120,00

■ CleanPool

HS 90272000

Combined tray for rehydration of CleanGels and soaking the electrode strips.

Cat.No.	Size	EUR
HPE-A01	1 piece	158,00

■ PaperPool

HS 90272000

Tray for soaking the electrode wicks in buffer (up to 80 ml) used for all FlatBed gels.

Cat.No.	Size	EUR
HPE-A02	1 piece	158,00

■ SERVA HPE™ ScreenPicker

HS 90272000

The semi-manual SERVA HPE™ ScreenPicker allows spot picking from fluorescent gels without visual post staining. The gel is placed on a horizontal flat screen which displays the scanned 2D image 1:1. Spots to pick are visualized one at a time by crosshair on the image. The plugs are disposed error-free into 96 well plates by using the picking list and the integrated plate identifier control.

- Semi-manual spot picking from fluorescent gels
- 2D image displayed 1:1 on gel via flat screen
- Guided picking spot by spot with error-free plug disposal

Content:

Screen picker complete with PC, software and picker head



Cat.No.	Size	EUR
HPE-SP1	1 piece	5.695,00

■ OneTouch 2D Gel Spotpicker

HS 90278017

2D gel spotpicker, ideally suited for SERVA ScreenPicker. Diameter 1.5 mm.

Cat.No.	Size	EUR
P2-D15	1 piece	225,00

■ OneTouch 2D Gel Spotpicker

HS 90278017

2D gel spotpicker, ideally suited for SERVA ScreenPicker. Diameter 3.0 mm.

Cat.No.	Size	EUR
P2-D30	1 piece	225,00

■ Protection Shield

HS 90278017

For SERVA ScreenPicker. To protect gel surface against contamination during spot picking.

Cat.No.	Size	EUR
PS-50	1 piece	105,00

■ Gel Remover

HS 90272000

For electrophoretic blotting of film-backed polyacrylamide gels, the support film must be re-moved. The Gel Remover enables a quick and easy removal of the film. The Gel Remover separates gels of up to 245 x 245 mm from their film support. The gel thickness may vary from 0.4 to 5 mm.

Cat.No.	Size	EUR
HPE-GR01	1 piece	855,00

■ Set of clamps

HS 90272000

Cat.No.	Size	EUR
HPE-GR12	3 x 1 piece	35,00

■ Wire assembly complete for Gel Remover

HS 90272000

Replacement wire assembly complete for Gel Remover (HPE-GR01).

Cat.No.	Size	EUR
HPE-GR11	5 x 1 piece	69,00

BlueLine - Flatbed System

■ HPE™ BlueHorizon™

HS 90272000

A flatbed system for horizontal applications using precast or self-cast gels. Max. gel format 260 x 205 mm. The electrode lid comes with one pair of platinum electrodes. Three fixed electrode positions (distances of 270 mm, 195 mm and 115 mm) allow the usage of a wide range of different sized gels.



BlueHorizon™ is a trademark of SERVA.

Cat.No.	Size	EUR
HPE-BH	1 piece	3.795,00

Products for Sample Preparation:
see special chapter at p. 123

BlueLine - Blotting

■ BlueFlash™ Small

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 100 x 100 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 23 x 15 x 8.3 cm

BlueFlash™ is a trademark of SERVA.

Cat.No.	Size	EUR
BF-S	1 piece	925,00

■ BlueFlash™ Medium

HS 90272000

Semi-dry blotting is faster than tank blotting. It requires less material and generates less heat. This has to do with the large volume of electrically conductive buffer used in tank blotting. Attempts to achieve high electric field strengths for rapid blotting lead to very high current demands and consequently large heat loads. These are not usually a factor in semi-dry blotting as the closely spaced electrodes separated by less conductive saturated filter papers permit rapid electrophoresis without the very high current.

Both, discontinuous and continuous buffer systems can be applied. Discontinuous buffer systems are particularly recommended because transfer is very homogeneous for a wide range of molecular weights, even larger proteins up to 200 kDa can be transferred with an efficiency of > 80%. The BlueFlash™ Semi-Dry blotters are equipped with long-lasting electrodes made from synthetic carbon. They are resistant to corrosion (pH 3 - 9, SDS) and built for homogeneous, fast and efficient transfer of nucleic acids and proteins.

The spring-mounted anode can be adapted to thicker gels (up to 5 mm) and gel stacks. The acrylic housing is resistant to 10 % ethanol and easy to clean. Safety lid, including design to prevent short-circuit (no gel). Little bench space required.

Flexible Format and Application:

Choose the right format for your application. SERVA offers semi-dry blotter units with various blotting areas ranging from small-sized BF-S and BF-M for mini gels up to large format BF-XXL to fit 2D gels. The sizes available suit all gel formats. They are suitable for blotting of large format gels (e.g. 2D) or simultaneous transfer of a series of mini gels. Usually, stacks of 2 gels can be blotted.

BlueFlash™ is a trademark of SERVA.



Blotting area: 150 x 150 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 28 x 20 x 8.3 cm

Cat.No.	Size	EUR
BF-M	1 piece	1.215,00

■ BlueFlash™ Large

HS 90272000

Description: see BlueFlash Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 250 x 280 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 45 x 33 x 8.3 cm

Cat.No.	Size	EUR
BF-L	1 piece	1.995,00

■ BlueFlash™ X-Large

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 385 x 235 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 43 x 37 x 8.3 cm

Cat.No.	Size	EUR
BF-XL	1 piece	1.895,00

■ BlueFlash™ XX-Large

HS 90272000

Description: see BlueFlash™ Semi-Dry Blotter Medium (cat. no. BF-M).

Blotting area: 385 x 385 mm
 Operating range of constant current: 0.8 - 3.5 mA
 Power supply requirements: 200 V, 500 mA
 Buffer volume: 0.2 ml/cm² x no. of sheets + 1.0 ml/cm² of membrane + 1.5 ml/cm² of gel
 Apparatus dimensions: 51 x 43 x 8.3 cm

Cat.No.	Size	EUR
BF-XXL	1 piece	2.050,00

BlueLine - Submarine

■ BlueMarine™ 100

HS 90272000

Gel format 7 x 10 cm for quick analysis of up to 28 samples. Contains main unit and also: 1 removable UV transparent gel tray (7 x 10 cm), 2 gel casting gates, 1 comb (1.0 mm, 8 samples).

**Operational Data**

Maximum operating voltage: 300 Volt
 Maximum operating current: 200 mAmp
 Approx. gel volume (5 mm gel): 35 ml
 Possible comb positions: 2
 Maximum of loadable samples: 28
 Electrode separation: 18 cm
 Recommended volts per cm: 14 - 140

BlueMarine™ is a trademark of SERVA.

Cat.No.	Size	EUR
BM 100	1 piece	465,00

■ BlueMarine™ 200

HS 90272000

Gel formats 15 x 15 cm or 15 x 20 cm for best resolution or high throughput analysis. Contains main unit and also: 1 removable UV transparent gel tray (15 x 20 cm), 1 removable UV transparent gel tray (15 x 15 cm), 2 gel casting gates, 2 combs (1.0 mm, 16 samples).

**Operational Data (Tray: 15 x 15 cm / 15 x 20 cm):**

Maximum operating voltage: 500 V / 500 V
 Maximum operating current: 300 mA / 300 mA
 Approx. gel volume (5 mm gel): 115 ml / 150 ml
 Possible comb positions: 2 / 4
 Maximum of loadable samples: 62 / 124
 Electrode separation: 28.5 cm / 28.5 cm
 Recommended volts per cm: 20 - 200 / 20 - 200

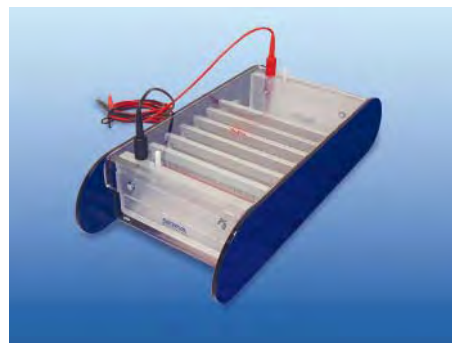
Cat.No.	Size	EUR
BM 200	1 piece	640,00

■ BlueMarine™ HTS

HS 90272000

Gel format 17.5 cm x 19.2 cm for high resolution long runs of single samples or analysis of complete 96-well microtiter plates. By changing the left/right orientation of the comb you can position the sample wells one upon the other or shifted to each other.

Contains main unit and also: 1 removable UV transparent gel tray, 2 aluminum gel casting gates, 6 aluminum combs with 17 sample wells.

**Operational Data:**

Maximum operating voltage: 500 V
 Maximum operating current: 300 mA
 Approx. gel volume (5 mm gel): 160 ml
 Possible comb positions: 6
 Maximum of loadable samples: 102
 Electrode separation: 28.5 cm
 Recommended volts per cm: 20 - 200 V
 Dimensions (W x L x H): 19.5 x 38 x 80 cm

Cat.No.	Size	EUR
BM HTS	1 piece	1.095,00

Operational Data

	BM 100	BM 200	BM 200	BM HTS
Gel Format (cm)	7.0 x 10.0	15.0 x 15.0	15.0 x 20.0	17.5 x 19.2
Maximum operating voltage (V)	300	500	500	500
Maximum operating current (mA)	200	300	300	300
Approx. gel volume (5 mm gel)	25 ml	115 ml	150 ml	160
Possible comb positions	2	2	4	6
Maximum of loadable samples	28	62	124	102
Electrode separation	18 cm	28.5 cm	28.5 cm	28.5
Recommended volts per cm	14 - 140	20 - 200	20 - 200	20 - 200

■ Casting gates for BlueMarine™ 100

HS 90271090

Gel width 7 cm.

Cat.No.	Size	EUR
BM 100-3	2 pieces	22,50

■ Casting gates for BlueMarine™ 200

HS 90279050

Gel width 15 cm.

Cat.No.	Size	EUR
BM 200-3	2 pieces	24,50

■ Casting gates, improved, for BlueMarine™ 200

HS 39269099

Gel width 15 cm.

Cat.No.	Size	EUR
BM 200-5	2 pieces	26,50

Combs for BlueMarine 100 (Gel width 7 cm)*

Cat.No.	No. of wells	Comb thickness (mm)	Well width (mm)	Well depth (mm)	Sample volume (µl)
BM 100-14-2.0	14	2.0	3.0	10	9
BM 100-14-1.5	14	1.5	3.0	10	10
BM 100-12-1.0	12	1.0	3.7	10	14
BM 100-12-1.5	12	1.5	3.7	10	17
BM 100-8-1.0	8	1.0	6.0	10	18
BM 100-8-1.5	8	1.5	6.0	10	28
BM 100-P1-2.0	1	2.0	55.0	10	330

* Indicated are the maximum sample volumes applicable to a 5 mm thick agarose gel in which the actual depth of a sample well is 3.5 mm.

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 8
 Thickness of comb (mm): 1.0
 Width of well (mm): 6.0
 Depth of well (mm): 10
 Sample Volume (µl) 18

Cat.No.	Size	EUR
BM 100-8-1.0	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 12
 Thickness of comb (mm): 1.0
 Width of well (mm): 3.7
 Depth of well (mm): 10
 Sample Volume (µl) 10

Cat.No.	Size	EUR
BM 100-12-1.0	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 8
 Thickness of comb (mm): 1.5
 Width of well (mm): 6.0
 Depth of well (mm): 10
 Sample Volume (µl) 28

Cat.No.	Size	EUR
BM 100-8-1.5	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 12
 Thickness of comb (mm): 1.5
 Width of well (mm): 3.7
 Depth of well (mm): 10
 Sample Volume (µl) 17

Cat.No.	Size	EUR
BM 100-12-1.5	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 14
 Thickness of comb (mm): 1.5
 Width of well (mm): 3.0
 Depth of well (mm): 10
 Sample Volume (µl) 14

Cat.No.	Size	EUR
BM 100-14-1.5	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Preparative comb.

Number of wells: 1
 Thickness of comb (mm): 2.0
 Width of well (mm): 55.0
 Depth of well (mm): 10
 Sample Volume (µl) 330

Cat.No.	Size	EUR
BM 100-P1-2.0	1 piece	36,00

■ Comb for BlueMarine™ 100 (Gel width 7 cm)

HS 39269097

Number of wells: 14
 Thickness of comb (mm): 2.0
 Width of well (mm): 3.0
 Depth of well (mm): 10
 Sample Volume (µl) 9

Cat.No.	Size	EUR
BM 100-14-2.0	1 piece	36,00

Combs for BlueMarine 200 (Gel width 15 cm)*

Cat.No.	No. of wells	Comb thickness (mm)	Well width (mm)	Well depth (mm)	Sample volume (µl)
BM 200-10-2.0	10	2.0	12	10	70
BM 200-10-1.5	10	1.5	12	10	52
BM 200-10-1.0	10	1.0	12	10	35
BM 200-16-2.0	16	2.0	7	10	40
BM 200-16-1.5	16	1.5	7	10	30
BM 200-16-1.0	16	1.0	7	10	20
BM 200-20-2.0	20	2.0	5	10	25
BM 200-20-1.5	20	1.5	5	10	20
BM 200-20-1.0	20	1.0	5	10	15
BM 200-M31-1.0	31	1.0	3	10	9
BM 200-M26-1.0	26	1.0	4	10	12
BM 200-M26-1.5	26	1.5	4	10	18
BM 200-M26-2.0	26	2.0	4	10	24
BM 200-P2-1.0	1+2	1.0	125	10	375
BM 200-P2-2.0	1+2	2.0	125	10	750

* Indicated are the maximum sample volumes applicable to a 5 mm thick agarose gel in which the actual depth of a sample well is 3.5 mm.

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 10
 Thickness of comb (mm): 1.0
 Width of well (mm): 12
 Depth of well (mm): 10
 Sample Volume (µl): 35

Cat.No.	Size	EUR
BM 200-10-1.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 16
 Thickness of comb (mm): 1.0
 Width of well (mm): 7
 Depth of well (mm): 10
 Sample Volume (µl): 20

Cat.No.	Size	EUR
BM 200-16-1.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 20
 Thickness of comb (mm): 1.0
 Width of well (mm): 5
 Depth of well (mm): 10
 Sample Volume (µl): 15

Cat.No.	Size	EUR
BM 200-20-1.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 10
 Thickness of comb (mm): 1.5
 Width of well (mm): 12
 Depth of well (mm): 10
 Sample Volume (µl): 52

Cat.No.	Size	EUR
BM 200-10-1.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 16
 Thickness of comb (mm): 1.5
 Width of well (mm): 7
 Depth of well (mm): 10
 Sample Volume (µl): 30

Cat.No.	Size	EUR
BM 200-16-1.5	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 20
 Thickness of comb (mm): 1.5
 Width of well (mm): 5
 Depth of well (mm): 10
 Sample Volume (µl): 20

Cat.No.	Size	EUR
BM 200-20-1.5	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 10
 Thickness of comb (mm): 2.0
 Width of well (mm): 12
 Depth of well (mm): 10
 Sample Volume (µl): 70

Cat.No.	Size	EUR
BM 200-10-2.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 16
 Thickness of comb (mm): 2.0
 Width of well (mm): 7
 Depth of well (mm): 10
 Sample Volume (µl): 40

Cat.No.	Size	EUR
BM 200-16-2.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Number of wells: 20
 Thickness of comb (mm): 2.0
 Width of well (mm): 5
 Depth of well (mm): 10
 Sample Volume (µl): 25

Cat.No.	Size	EUR
BM 200-20-2.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Multichannel-pipette comb.

Number of wells: 26
 Thickness of comb (mm): 1.0
 Width of well (mm): 4
 Depth of well (mm): 10
 Sample Volume (µl): 12

Cat.No.	Size	EUR
BM 200-M26-1.0	1 piece	49,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Multichannel-pipette comb.

Number of wells:	31
Thickness of comb (mm):	1.0
Width of well (mm):	3
Depth of well (mm):	10
Sample Volume (μl)	9

Cat.No.	Size	EUR
BM 200-M31-1.0	1 piece	49,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Multichannel-pipette comb.

Number of wells:	26
Thickness of comb (mm):	1.5
Width of well (mm):	4
Depth of well (mm):	10
Sample Volume (μl)	18

Cat.No.	Size	EUR
BM 200-M26-1.5	1 piece	49,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Multichannel-pipette comb.

Number of wells:	26
Thickness of comb (mm):	2.0
Width of well (mm):	4
Depth of well (mm):	10
Sample Volume (μl)	24

Cat.No.	Size	EUR
BM 200-M26-2.0	1 piece	49,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Preparative comb.

Number of wells:	1+2
Thickness of comb (mm):	1.0
Width of well (mm):	125
Depth of well (mm):	10
Sample Volume (μl)	375

Cat.No.	Size	EUR
BM 200-P2-1.0	1 piece	39,00

■ Comb for BlueMarine™ 200 (Gel width 15 cm)

HS 39269097

Preparative comb.

Number of wells:	1+2
Thickness of comb (mm):	2.0
Width of well (mm):	125
Depth of well (mm):	10
Sample Volume (μl)	750

Cat.No.	Size	EUR
BM 200-P2-2.0	1 piece	39,00

■ Gel tray 15 x 15 cm, for BlueMarine™ 200 (Gel width 15 cm)

HS 90279050

UV transparent gel tray (15 x 15 cm) for BlueMarine™ 200. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size	EUR
BM 200-15-2	1 piece	105,00

■ Gel tray 15 x 20 cm, for BlueMarine™ 200 (Gel width 15 cm)

HS 90279050

UV transparent gel tray (20 x 15 cm) for BlueMarine™ 200. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size	EUR
BM 200-20-2	1 piece	105,00

■ Gel tray 7 x 10 cm, for BlueMarine™ 100 (Gel width 7 cm)

HS 90279050

UV transparent gel tray (7 x 10 cm) for BlueMarine™ 100. Incl. 2 gel casting gates for leak-free sealing.

Cat.No.	Size	EUR
BM 100-21	1 piece	105,00

■ Replacement electrode for BlueMarine™ 100 (Gel width 7 cm)

HS 90271090

Cat.No.	Size	EUR
BM 100-RE	1 piece	215,00

■ Replacement electrode for BlueMarine™ 200 (Gel width 15 cm)

HS 90279090

Cat.No.	Size	EUR
BM 200-RE	1 piece	215,00

BlueLine - Power Supplies

■ BluePower™ 200x4 Power Supply

HS 90272000

The BluePower™ 200x4 (200 V, 2 A, 250 W) is suited for applications requiring high current (e. g. tank blotting of proteins). It is also compatible with separation of nucleic acids. 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-200X4	1 piece	1.125,00

■ BluePower™ 500x4 Power Supply

HS 90272000

The allround instrument serving many applications, e.g., SDS PAGE, submarine electrophoresis and blotting. BluePower™ 500x4 features 500 V, 1000 mA and 200 W. The BP-500x4 power supply is particularly advised for operation of up to four vertical slab gel units run at higher voltage, also resulting in shorter running times and for blotting applications (tank blot, semi-dry blot). 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-500X4	1 piece	1.125,00

■ BluePower™ 1500x4 Power Supply

HS 90272000

BluePower™ 1500x4 is designed for high voltage applications delivering 1500 V, 400 mA and 300 W. Applications like SDS PAGE, submarine electrophoresis can be performed as well. 4 x 2 outlets, programmable.

Cat.No.	Size	EUR
BP-1500X4	1 piece	1.795,00

■ BluePower™ 3000x4 Power Supply

HS 90272000

BluePower™ 3000x4 is designed for high voltage applications (isoelectric focusing, DNA sequencing) delivering 3000 V, 200 mA and 300 W. Other applications (SDS PAGE, submarine electrophoresis) can be performed as well. 4 x 2 outlets, programmable.



Cat.No.	Size	EUR
BP-3000X4	1 piece	1.795,00

■ BluePower Control Kit V1.0

HS 90272000

The BluePower Supply Control Kit provides the communication between a SERVA BlueLine™ Power Supply and an IBM compatible personal computer (Windows 98 and higher) via an USB-serial converter and a documentation software.

It has basically two functions:

1. Monitoring of voltage, current, and power during the time course of an electrophoresis run
2. Loading, storage, and documentation of multistep power supply settings

The Power Supply Control Kit can be used with the following SERVA power supplies: BluePower™ 200x4, BluePower™ 500x4, BluePower™ 1500x4, BluePower™ 3000x4, and HPE Power Supply 1500.

Content:

High-speed USB-serial converter, gender changer for serial port, USB stick containing: software package, power supply programs for various applications; instruction manual

Cat.No.	Size	EUR
BP-PCSV01	1 kit	295,00

Gel Documentation and Analysis

■ SERVA UV-Table C II 312 nm, 22 x 28 cm, w. Lid for DIAS-II

HS 90278017

UV table with wavelength of 312 nm and filter size of 22 x 28 cm. Suitable for digital image analysis, preparation of nucleic acids and other daily routine work. Stainless steel filter frame and robust steel housing. Homogeneous UV light for uniform illumination of samples and high UV intensity due to the use of reflectors made of refined aluminium. Applicable as a white light table in combination with the RadiCon® converter plate. The removable adjustable UV protection shield is adapted to the special needs when used in combination with the SERVA Digital Imaging and Analysis System II (DIAS-II).



Cat.No.	Size	EUR
UV-CII	1 piece	1.125,00

■ SERVA WL-Table 22 x 28 cm

HS 90278017

White light table with filter size of 22 x 28 cm. Suitable for digital image analysis and other daily routine work. Stainless steel filter frame and robust steel housing.

Cat.No.	Size	EUR
WL-28	1 piece	625,00

■ SERVA RadiCon™ Plate 22 x 28 cm

HS 90278017

RadiCon™ Plate for conversion of UV light into visible light. The combination of this low-cost plate with an UV transilluminator replaces an extra white light table.

Cat.No.	Size	EUR
RADICON-28	1 piece	220,00

■ GelScan 6.0 1 D Analysis Software

HS 90278017

1D analysis software for

■ Expression Analysis:

The expression modul allows to compare expression patterns of different gels, to investigate the presence or absence of bands in protein or DNA gels.

■ Determination of Molecular Weight/pI value:

The analysis of molecular weight (MW) or isoelectric point (pI) of different species separated in a gel is carried out easily by comparison bands in adjacent lanes. Even oblique running gels can be analyzed. User-defined marks can be edited and calibrated.

■ Quantification:

The quantity of proteins or DNA in bands could be easily determined by comparison of density values with a standard curve calculated by using protein or DNA quantity standards.

Other main features are:

- automatic band detection
- individual edition of bands
- automatic and manual background subtraction
- gel management tool
- GLP-conformity, read-out of embedded tiff-tags
- database for images, projects and results
- automatic backup of all data
- export into MS Word, MS Excel, MS PowerPoint
- 2 years free update, free of charge (online registration)
- full demo version available, free of charge
- RFLP, cluster and HTS analysis available, please ask.
- includes GelScript for easy inscription of images

Cat.No.	Size	EUR
GS-V60	1 piece	1.650,00

■ DSR Remote Pro

HS 90278017

Advanced remote control software for DIAS II

Cat.No.	Size	EUR
DSR-RP01	1 piece	inquire

■ Laptop Bridge

HS 90278017

Fits perfect for BIO-5000 VIS Gel Scanner. 470 x 260 x 285 mm, 30 kg max.

Cat.No.	Size	EUR
LB-47	1 piece	115,00

■ SERVA Digital Imaging and Analysis System III

HS 90275000

The SERVA Digital Imaging and Analysis System III (DIAS-III) is the ideal solution to master the daily tasks of documentation and 1 D gel analysis in the routine laboratory work. Solid hardware including a digital camera and easy-to-grasp software are combined to provide an excellent tool to meet your needs. Capture a quick image of your protein or DNA gel for your records in the lab book and perform an advanced analysis conforming to GLP standards.

Components:

- Darkroom cabinet (42 x 52 x 55 cm)
- UV filter & filter holder
- Digital Camera (Canon)
- GelScan 6.0 1D Analysis Software
- GelScript 1.1 Software (Annotation of gel images)



Cat.No.	Size	EUR
DIAS-III	1 piece	4.950,00

■ SERVA RadiCon™ Blue Plate

HS 90278017

Cat.No.	Size	EUR
RADICONBLUE-28	1 piece	220,00

■ SERVA UV-Table CIIL

HS 90278017

UV table with wavelength of 312 nm and filter size of 22 x 28 cm. Suitable for digital image analysis, preparation of nucleic acids and other daily routine work. Stainless steel filter frame and robust steel housing. Homogeneous UV light for uniform illumination of samples and high UV intensity due to the use of reflectors made of refined aluminium. The lid serves as removable adjustable UV protection shield. Applicable as a white light table in combination with the RadiCon® converter plate.

Cat.No.	Size	EUR
UV CIIL	1 piece	1.175,00

■ UV/WL-Toplight (for DIAS-II), 254 nm

HS 90275000

Combined UV (254 nm) and white light top light.

Cat.No.	Size	EUR
14-EL-254	1 piece	540,00

■ UV/WL-Toplight (for DIAS-II), 365 nm

HS 90275000

Combined UV (365 nm) and white light top light.

Cat.No.	Size	EUR
14-EL-365	1 piece	540,00

■ White Light Toplight (for DIAS-II)

HS 90275000

Cat.No.	Size	EUR
14-EL-WL	2 pieces	760,00

Centrifuges

■ BlueSpin Mini

HS 84211970

The BlueSpin Mini is a compact benchtop microcentrifuge for all kinds of sample preparations and molecular biology experiments. The strong steel layered door has an automatic door release and an auto-lock function during spinning. The patented unique air-flow design minimizes heat and noise generation (≤ 56 dB). The included autoclavable 12-hole rotor is sealed with an O-ring lid. Speed and remaining time are displayed on the LCD screen. The BlueSpin Mini sounds an alarm at over-speed and over-heat.

- 13,500 rpm (12,300 g) max
- Rotor with 12 places for tubes from 0.2 - 2.0 ml (adaptors included)
- Optional: PCR rotor for four 8-well strips (tube capacity 0.2 ml); 6,000 rpm / 1,850 g max
- Time setting $t < 30$ min., „PULSE“ key for quick run
- Dimensions (W x D x H, mm): 208 x 245 x 145
- Weight w/o rotor: 4.4 kg



Cat.No.	Size	EUR
BS-MINI	1 piece	745,00

■ PCR tube rotor / for 4 rows of PCR strips for BlueSpin Mini

HS 84211970

Fixed angle PCR rotor (angle is 45°) for 4 x 8 tube PCR strips (tube capacity 0.2 ml; 32 x 0.2 ml). 6000 rpm max., 1554 xg max. (1st.) and 1850 xg (2nd). The rotor is autoclavable.

Cat.No.	Size	EUR
BS-MRP	1 piece	95,00

■ 0.2 ml Adaptor of microtube rotors

HS 84211970

0.2 ml microtube adaptor for BlueSpin Mini and BlueSpin Cryo microcentrifuge.

Cat.No.	Size	EUR
BS-A02	24 pieces	36,00

■ 0.5 ml Adaptor of microtube rotors

HS 84211970

0.5 ml microtube adaptor for BlueSpin Mini and BlueSpin Cryo microcentrifuge.

Cat.No.	Size	EUR
BS-A05	24 pieces	36,00

■ BlueSpin Cryo

HS 84211970

The BlueSpin Cryo is a compact refrigerated microcentrifuge for all kinds of temperature sensitive sample preparations and molecular biology experiments. The strong steel layered door has an automatic door release and an auto-lock function during spinning. The fast cool down function reaches 4°C within 5 minutes. A compressor cut-off minimizes frosting during opened door. Temperature, speed and remaining time are displayed on the LCD screen. The BlueSpin Cryo sounds an alarm over imbalance, over-speed and over-heat. Select a 24- or 30-hole autoclavable rotor for 1.5/2 ml tubes with O-ring sealed-lid, optional adaptors for 0.5 ml or 0.2 ml microtubes are available. A PCR rotor for eight 8-well strips (tube capacity 0.2 ml) is also available. For safety, the installed rotor is automatically identified.

- 17,000 rpm (27,237 xg) max.
- Time setting $t < 100$ min or continuous, „PULSE“ key for quick runs
- Programm memory for up to 100 programs
- Temperature range from -20°C up to 40°C
- Noise level ≤ 56 dB
- Dimensions (W x D x H): 310 x 620 x 265 mm
- Weight w/o rotor: 43 kg



Cat.No.	Size	EUR
BS-CRYO	1 piece	3.450,00

■ Microcentrifuge rotor / 24 microtubes for BlueSpin Cryo

HS 84211970

Fixed angle rotor (45°) for 24 1.5 or 2.0 ml microtubes, optional adaptors for 0.5 and 0.2 ml microtubes are available. 17,000 rpm max., for 1.5/2.0 microtubes 27,237 xg max, for 0.5 ml microtubes 23,910 xg max., for 0.2 ml microtubes 21,648 xg max. The rotor is autoclavable and supplied with an aerosol tight O-ring.

Cat.No.	Size	EUR
BS-MRR24	1 piece	465,00

■ Microcentrifuge rotor / 30 microtubes for BlueSpin Cryo

HS 84211970

Fixed angle rotor (45°) for 30 1.5 or 2.0 ml microtubes, optional adaptors for 0.5 and 0.2 ml microtubes are available. 14,000 rpm max., for 1.5/2.0 microtubes 21,124 xg max, for 0.5 ml microtubes 18,845 xg max., for 0.2 ml microtubes 17,311 xg max. The rotor is autoclavable and supplied with an aerosol tight O-ring.

Cat.No.	Size	EUR
BS-MRR30	1 piece	725,00

■ PCR tube rotor / for 8 rows of PCR strips for BlueSpin Cryo

HS 84211970

PCR rotor (angle is 45°) for 8 x 8 tube PCR strips (tube capacity 0.2 ml; 64 x 0.2 ml). 12,500 rpm max., 10,237 xg max. (1st.) and 11,722 xg (2nd). The rotor is autoclavable.

Cat.No.	Size	EUR
BS-MRP64	1 piece	845,00

Shakers

■ SERVA BlueShake 3D

HS 84798200

3D Shaker with large size incubation platform (350 x 350 mm) suitable for various incubation and preparation techniques (e. g. staining/destaining procedures). Smooth start and stop to avoid gel break. Robust housing and metal platform with anti-slipping mat.

- Shaking frequency: 5 - 50 rpm
- Timer: 0 - 120 min
- Max. load: 5 kg
- Dimensions (W x D x H): 340 x 400 x 140 mm



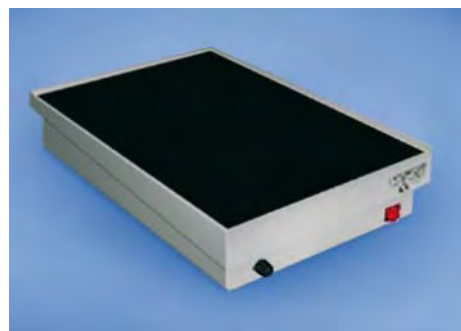
Cat.No.	Size	EUR
BS-3D	1 piece	1.395,00

■ Rocking Table Kick II, temperable Format 45 x 30 cm

HS 39121100

Large size incubation platform (45 x 30 cm) suitable for various incubation and preparation techniques (e. g. staining/destaining procedures, ELISAs, immunodiffusion, immunoblotting, histochemistry, in-situ-hybridization).

Kick II is equipped with electronic regulation of lifting frequency (10 - 100/min) including newly developed lifting technique performing a continuous light „kick“ agitation to prevent gels and membranes from sticking to their containment support.



Cat.No.	Size	EUR
KICK II	1 piece	1.625,00

Thermoshakers

■ SERVA BlueThermo H

HS 84198998

Heatable Thermoshaker with stable and robust metal housing and easy to clean high quality touch panel.

Smart control: Use up to 9 programs or continuous mode. All parameters are adjustable (timer, interval shaking, short mix, heating). The block is exchangeable and has a high temperature accuracy (+/- 0.1 °C) due to a 10-point-calibration.

- Temperature operation range: Amb. +3 °C ...+130 °C
- Temperature adjustable range: 0 °C...+135 °C
- Average heating time: 11.5 °C / min
- Shaking frequency: 200 - 1500 rpm
- Dimensions (W x D x H): 220 x 330 x 109 mm
- Weight: 6.5 kg
- Electrical heating power: 200 W

Please inquire for a 2-block Thermoshaker or a suitable block for your application.



Cat.No.	Size	EUR
BT-H	1 piece	2.155,00

■ SERVA BlueThermo HC

HS 84198998

Heat- and coolable Thermoshaker with stable and robust metal housing and easy to clean high quality touch panel.

Smart control: Use up to 9 programs or continuous mode. All parameters are adjustable (timer, interval shaking, short mix, heating, cooling). The block is exchangeable and has a high temperature accuracy (+/- 0.1 °C) due to a 10-point-calibration.

- Temperature operation range: Amb. -16 °C ... +100 °C
- Temperature adjustable range: -10 °C ... +105 °C
- Maximum heating time: 6 °C / min
- Maximum cooling time: 12 °C / min
- Shaking frequency: 200 - 1500 rpm
- Dimensions (W x D x H): 220 x 330 x 109 mm
- Weight: 9 kg
- Electrical heating / cooling power: 130 W

Please inquire for a 2-block Thermoshaker or a suitable block for your application.



Cat.No.	Size	EUR
BT-HC	1 piece	2.595,00

■ Block 24 x 0.5 and 1.5 ml tubes for SERVA BlueThermo

HS 84199085

Mixed Block for both conical 0.5 ml tubes and conical 1.5 ml tubes.



Cat.No.	Size	EUR
BT-B24-MIX	1 piece	395,00

■ Block 24 x 1.5 - 2.0 ml cryo tubes for SERVA BlueThermo

HS 84199085

Block for cryo tubes 1.5 ml - 2.0 ml.



Cat.No.	Size	EUR
BT-B24-CRYO	1 piece	395,00

■ Block 24 x 1.5 ml tubes for SERVA BlueThermo

HS 84199085

Block for conical 1.5 ml tubes.



Cat.No.	Size	EUR
BT-B24-1.5	1 piece	295,00

■ Block 24 x 2.0 ml tubes for SERVA BlueThermo

HS 84199085

Block for cylindrical 2.0 ml tubes.

Cat.No.	Size	EUR
BT-B24-2.0	1 piece	295,00

■ Block 38 x 0.5 ml tubes for SERVA BlueThermo

HS 84199085

Block for conical 0.5 ml tubes.



Cat.No.	Size	EUR
BT-B38-0.5	1 piece	295,00

■ Block 96 x 0.2 ml tubes for SERVA BlueThermo

HS 84199085

Block for conical 0.2 ml tubes or 8-well PCR stripes.



Cat.No.	Size	EUR
BT-B96-0.2	1 piece	295,00

■ Block for 96-well microtiter plates for SERVA BlueThermo

HS 84199085

Block for 96 well microtiter plates with round or "V" bottom.



Cat.No.	Size	EUR
BT-BMTP-96	1 piece	295,00

■ Block for 96-well PCR plates for SERVA BlueThermo

HS 84199085

Block for PCR 96 well plates with "V" bottom.



Cat.No.	Size	EUR
BT-BPCR-96	1 piece	295,00

■ Block for microtiter plates, flat bottom for SERVA BlueThermo

HS 84199085

Block for microtiter plates with flat bottom.

Cat.No.	Size	EUR
BT-BMTP-FLAT	1 piece	295,00

Aspiration Systems

■ SERVA BlueCell

HS 84141089

Cell culture aspiration system with autoclavable 4 l - bottle. Space saving setting with bottle on top. The membrane vacuum pump is mounted in a metal-solid body. The pump is noise reduced, produces a vacuum down to 250 mbar and aspiration speed of 25 l / min. The 4 l polypropylene bottle with fast-lock clutches ensures an easy removal for cleaning. The safety filter prevents leaking of liquids.

- Dimensions (W x D x H):

170 x 220 x 155 mm



Cat.No.	Size	EUR
BLUECELL	1 piece	1.195,00

■ SERVA BlueCell basic

HS 84141089

Simple cell culture aspiration system with autoclavable 4 l - bottle. The external pump is noise reduced, produces a vacuum down to 700 mbar and an aspiration speed of 8 l / min. The 4 l polypropylene bottle with fast-lock clutches ensures an easy removal for cleaning. The safety filter prevents leaking of liquids.

- Dimensions pump

(W x D x H):

75 x 170 x 60 mm



Cat.No.	Size	EUR
BLUECELL-B	1 piece	595,00

■ SERVA BlueCell vario

HS 84141089

Automatic cell culture aspiration system with autoclavable 4 l - bottle. With the handle, the aspiration speed and suction start / stop is regulated. Extendable for up to four users by connecting more bottles and handles. Space saving setting with bottle on top. The membrane vacuum pump is mounted in a metal-solid body. The pump is noise reduced, produces a vacuum down to 100 mbar and aspiration speed of 17 l / min. The 4 l polypropylene bottle with fast-lock clutches ensures an easy removal for cleaning. The safety filter prevents leaking of liquids.

• Dimensions (W x D x H):

170 x 220 x 155 mm



Cat.No.	Size	EUR
BLUECELL-V	1 piece	1.895,00

■ Bottle holder for SERVA BlueCell Basic

HS 84149000

Bottle holder for 4 l bottles.

Cat.No.	Size	EUR
BC-BH4	1 piece	205,00

■ Yellow pipette tip aspiration adaptor

HS 84149000

Aspiration adaptor for yellow pipette tips.

Cat.No.	Size	EUR
BC-SAPT	1 piece	74,00

■ 8-Channel aspiration rake adaptor for SERVA BlueCell Vario

HS 84149000

Adaptor with 8-channel aspiration rake, autoclavable.

Cat.No.	Size	EUR
BC-SAR8	1 piece	88,00

■ Safety filter for SERVA BlueCell

HS 84149000

Cat.No.	Size	EUR
BC-SF	3 pieces	110,00

■ Handle with flow control for SERVA BlueCell Vario

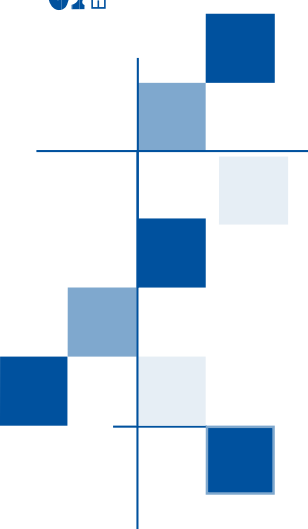
HS 84149000



Cat.No.	Size	EUR
BC-HFC	1 piece	262,00

Collagenases & Neutral Protease

Collagenases	270
Neutral Proteases	273



Collagenases – For Tissue Dissociation

Collagenases from *Clostridium histolyticum* are proteolytic enzymes that are able to cleave peptide bonds in the triple helical collagen molecule of human or animal tissue *in situ*. The collagenases are divided into class I and class II collagenase isoforms on the basis of their activities towards synthetic peptides. Both collagenase isoforms act on triple helical type I, II, III and IV collagens, but in slightly different modes of action.

SERVA Collagenase NB grades are particularly suitable for various tissue isolation applications. The application of pharmaceutical manufacturing standards guarantees stringent quality control, high quality, reliable lot-to-lot consistency and excellent performance of the product. Information about TSE safety is stated on certificates of origin for each product.

Reference Collagenases N (cat. no. 17463, 17464) are available for enzyme activity determination or incoming goods inspection according to GMP.

Anti-Collagenase polyclonal antibody from sheep (cat. no. 58050) and **Anti-Collagenase HRP polyclonal antibody from sheep (cat. no. 58051)** can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Stability and Storage

Collagenase requires calcium ions both for full catalytic activity and binding to the collagen molecule. Collagenase NB grades are soluble in water and common buffers. The enzyme is reversibly inactivated at high pH values and irreversibly inactivated at low pH values. Inhibitors of collagenase include cysteine, EDTA, o-phenanthroline, 8-hydroxyquinoline-5-sulfonate, bipyridyl and 2,3-dimercaptopropanol. It is also inhibited by TRIS buffer above pH 7.5. Collagenase is not inhibited by diisopropylphosphorofluoridate.

All Collagenase NB products delivered as lyophilized powders can be stored at +2 to +8 °C. Lyophilized enzymes should be protected from moisture.

Dissolved enzymes can be aliquoted and stored at -20 °C for one year. Repeated freezing and thawing should be avoided.

Conversion rates of collagenase activity units

SERVA states collagenase activity in PZ units according to Wunsch:

1 PZ U/mg ~ 3.9 FALGPA U/mg

1 PZ U/mg ~ 1000 Mandl or CDU/mg

1 PZ U/mg ~ 10 HP U/mg

Collagenases**Collagenase NB Grades**

Collagenase NB 1 Premium Grade (cat. no. 17455) is a chromatographically highly purified product. It contains collagenase class I and II and very low levels of proteolytic side activities and bacterial endotoxins. This enzyme is used for isolation of sensitive cells and guarantees high yields and viability. It is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

Chromatographically purified **Neutral Protease NB (cat. no. 30301)** is an essential additive for isolation of pancreatic islets and is provided separately allowing individual dosage and high stability of the enzymes. With **Neutral Protease NB High Active Grade (cat. no. 30302)** a higher purified alternative of the standard Neutral Protease NB is available.

Collagenase NB 4 Standard Grade (cat. no. 17454) contains collagenase class I and class II as well as a balanced ratio of proteolytic side activities like neutral protease or clostripain. It is suitable for mild and effective isolation of a broad variety of cells.

Collagenase NB 4G Proved Grade (cat. no. 17465) possesses an increased collagenase activity compared to Collagenase NB 4 Standard Grade and a balanced mix of neutral protease, clostripain and trypsin-like activities.

Collagenase NB 5 Sterile Grade (cat. no. 17459) has similar enzymatic properties as Collagenase NB 4 Standard Grade, but is manufactured under aseptic conditions according to the European Pharmacopoeia.

Collagenase NB 8 Broad Range (cat. no. 17456) is a purified collagenase characterized by an increased collagenase activity and reduced levels of proteolytic side activities and bacterial endotoxins.

Good Manufacturing Practice for Cell Isolation

If isolated cells are used for tissue engineering or transplantation into humans collagenase (and neutral protease) are regarded as critical raw materials. Therefore these enzymes have to be manufactured in compliance with the EU guidelines to Good Manufacturing practice (GMP). In addition SERVA GMP enzymes fulfill the requirements of TSE guidelines according to the European Pharmacopoeia.

Collagenase NB 1 GMP Grade (cat. no. 17452) and **Neutral Protease NB GMP Grade (cat. no. 30303)** are especially designed for isolation of islets of Langerhans intended for transplantation into humans. Their enzymatic properties are comparable to Collagenase NB 1 Premium Grade and Neutral Protease NB, respectively.

Collagenase NB 6 GMP Grade (cat. no. 17458) is suitable for isolation of cells from a broad range of tissues. Among others it is optimal for isolation of human stem cells, ADSCs, hepatocytes or chondrocytes. It is sterile according to Ph. Eur.

The enzymatic properties are comparable to Collagenase NB 4 Standard Grade.

Collagenase NB 1 Premium Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3.00 U/mg

Endotoxin: ≤ 10.0 EU/mg (Ph. Eur.)

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB (cat. no. 30301) Collagenase NB 1 Premium Grade is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

For research use only. If cells are intended for transplantation into humans, Collagenase NB 1 GMP Grade (cat. no. 17452) is recommended.

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51.

Cat.No.	Size	EUR
17455.03	≥ 2.000 U	870,00

Collagenase NB 1 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3000 U/mg

Endotoxin ≤ 10.0 EU/mg (Ph. Eur.)

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB GMP Grade (cat. no. 30303), Collagenase NB 1 GMP Grade is especially applicable to isolation of pancreatic islets of Langerhans.

Collagenase NB 1 GMP Grade is recommended for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definitions:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17452.01	≥ 2.000 U	inquire

Collagenase NB 4 Standard Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Suitable for different applications in tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

As Collagenase NB 4 Standard Grade has comparable enzymatic properties to Collagenase NB 5 Sterile Grade (cat. no. 17459) and Collagenase NB 6 GMP Grade (cat. no. 17458), this enzyme might also be used in order to establish applications which have to meet sterile or GMP requirements like tissue engineering and transplantation.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17454.02	500 mg	81,00
17454.01	1 g	139,00

Collagenase NB 4G Proved Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenase) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced mix of neutral protease, clostripain and trypsin-like activities.

PZ activity (Wünsch): ≥ 0.18 U/mg

Suitable for isolation of a broad variety of cell types, especially for fibroblasts, human and rodent hepatocytes, frog oocytes and epithelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17465.01	500 mg	91,00
17465.02	1 g	165,00

■ Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Microbiological examination: Sterility, absence of *Clostridia*

Sterile according to Ph. Eur.

For applications where the use of sterile collagenase according to the guidelines of the European Pharmacopoeia is required.

Collagenase NB 5 Sterile Grade is applicable to tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

See also Collagenase NB 6 GMP Grade (cat. no. 17458).

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17459.03	1 g	263,00

■ Collagenase NB 6 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.100 U/mg

Microbiological examination: Sterility, absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Sterile according to Ph. Eur.

Manufactured according to EU GMP guidelines.

For applications which have to meet GMP requirements like tissue engineering and transplantation.

Collagenase NB 6 GMP Grade is applicable to tissue dissociation such as isolation of human ADSCs, stem cells, chondrocytes, fibroblasts, neuronal and endothelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17458.03	1 g	654,00
17458.04	100 mg	194,00

■ Collagenase NB 8 Broad Range from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains class I and class II collagenase (1) as well as reduced levels of clostripain, trypsin-like activities and neutral protease.

Chromatographically purified.

PZ activity (Wünsch): ≥ 0.90 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Suitable for a broad range of different applications in tissue dissociation such as isolation of rodent pancreatic islets of Langerhans, porcine hepatocytes, cardiomyocytes, tumor cells, muscle cells and human osteoblasts. Increased PZ activity compared to Collagenase NB 4 Standard Grade (cat. no. 17454) and Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17456.01	250 mg	138,00
17456.02	1 g	398,00

■ Collagenase N Reference Content from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Collagenase activity is re-evaluated quarterly.

Reference substance according to GMP guidelines for enzyme activity determination.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17463.01	≥ 50 mg	550,00

■ Collagenase N Reference Identity from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP guidelines.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17464.01	≥ 50 mg	195,00

■ Anti-Collagenase (*Clostridium histolyticum*), polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB.

IgG fraction purified by Protein G affinity chromatography.

100 µg IgG (1 mg/ml) supplied as solution in PBS with 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Anti-Collagenase polyclonal antibody can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Tested in ELISA and Western blot.

Store aliquots at -15 to -25 °C. Thaw at 4 °C. Avoid freeze and thaw cycles.

Cat.No.	Size	EUR
58050.01	100 µg	342,00

■ Anti-Collagenase (*Clostridium histolyticum*) HRP, polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB. Conjugated with horseradish peroxidase.

IgG fraction purified by affinity chromatography.

100 µg IgG conjugated with HRP supplied as solution in PBS with 50 % glycerine and 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) HRP polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Tested for ELISA.

Store aliquots at -15 to -25 °C

Cat.No.	Size	EUR
58051.01	100 µg	427,00

Neutral Proteases

Neutral Protease NB produced by *Clostridium histolyticum* is a 34 kDa enzyme with an activity optimum in the neutral pH range. For some applications Neutral Protease NB in addition to Collagenase NB is essential for dissociation of tissue.

■ Neutral Protease NB from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦ EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Largely free of collagenolytic activity.

Metalloprotease suitable for tissue dissociation applications. For cell

isolation Neutral Protease NB is used in combination with purified

Collagenase NB 1 Premium Grade (cat. no. 17455) as well as

Collagenase NB 4 Standard Grade (cat. no. 17454) or

Collagenase NB 8 Broad Range (cat. no. 17456).

For research use only. If cells are intended for transplantation into humans,

Neutral Protease NB GMP Grade (cat. no. 30303) is recommended.

Unit definition: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30301.11	50 DMC-U	114,00
30301.12	100 DMC-U	165,00

■ Neutral Protease NB GMP Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦ EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Vial contains not less than 100 DMC U of neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Largely free of collagenolytic activity.

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB GMP Grade is used in combination with

purified Collagenase NB 1 GMP Grade (cat. no. 17452) or

Collagenase NB 6 GMP Grade (cat. no. 17458) for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30303.01	≥ 100 DMC-U	inquire

■ Neutral Protease NB High Active Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦ EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains highly active, chromatographically purified neutral protease from *Clostridium histolyticum*.

Neutral protease activity (DMC): ≥ 5.00 U/mg.

Largely free of collagenolytic activity.

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Metalloprotease suitable for tissue dissociation applications. For cell

isolation Neutral Protease NB High Active Grade is used in combination

with highly purified Collagenase NB 1 Premium Grade (cat. no. 17455),

Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 4G

Proved Grade (cat. no. 17465).

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30302.02	80 DMC-U	175,00

Life Sciences

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Bovine Serum Albumins

Serum albumin is a globular protein which comprises about 50 - 60 % of all serum proteins. It serves as protein reserve and plays an important role in osmoregulation. Furthermore, it functions as carrier and binding protein in the blood circulation system for fatty acids, growth factors, hormones, metabolites, vitamins etc.. Compared with other proteins, serum albumin is characterized by the following features:

- High solubility in salt-free water
- High stability against heat (especially in the presence of stabilizers such as Na-caprylate) and other denaturing agents
- Compatibility with other proteins

These properties and the relatively simple way to isolate it in large quantities are the reason why there are so many fields of application for albumin.

Using different isolation and purification methods, allows to manufacture albumins with different properties, e.g. protease-free, fatty acid-free, low in endotoxins or heavy metals. The first table at the end of this section lists the product specifications and properties of our albumins and the second one shows which albumin can be used for the various applications.

■ Albumin bovine, DNase/RNase-free molecular biology grade

M_r ca. 67 000 ♦ CAS [9048-46-8]

HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin manufactured by a proprietary heat shock precipitation and ultrafiltration process. Especially suitable for use in hybridization and nucleic acid based assays.

Assay (CAF) > 97.0 %
pH (10 % in H₂O) 6.5 – 7.4
DNase/RNase not detected

Cat.No.	Size	EUR
11967.01	5 g	20,00
11967.02	25 g	56,00
11967.03	100 g	168,00

■ Albumin bovine cryst. lyophil.

(BSA; Bovine serum albumin)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

The purest form of our bovine albumins. Manufacturing includes a proprietary heat-shock fractionation process, ion exchange treatment and triple sequential crystallization, resulting in an extremely pure product. Best suited for use in highly sensitive systems requiring consistent protein background. Crystal form simplifies handling and weighing.

Assay (CAF) min. 99.0 %
pH (7 % in H₂O) 5.0 - 5.4
Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
11920.02	1 g	28,00
11920.05	5 g	100,00
11920.04	10 g	180,00
11920.06	50 g	651,00

■ Albumin bovine Fraction V, pH 7.0 standard grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. Standard quality for many applications, e.g. as protein standard, growth promoter in serum-free media for the cultivation of animal cells, supplement in microbiological nutrient media, diluent/stabilizer in diagnostic systems, stabilizer of isolated enzymes and antibodies or blocking agent to prevent non-specific absorption.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 6.8 - 7.2
Moisture (KF) max. 5.0 %
Iron (µg/g, AA) max. 15
IgG not detectable

Cat.No.	Size	EUR
11930.01	10 g	20,00
11930.02	25 g	39,00
11930.03	100 g	109,00
11930.04	500 g	435,00

■ Albumin bovine Fraction V, pH 5.2 standard grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured in a similar way as cat. no. 11930 but with adjustment to pH 5.2 prior to lyophilization. Special quality for serology, antibody enhancement, bacterial and animal culture media.

Assay (CAF) min. 98.0 %
pH (7 % in H₂O) 5.2 - 5.6
Moisture (KFT) max. 5.0 %

Cat.No.	Size	EUR
11922.02	25 g	58,00
11922.03	100 g	185,00

■ Albumin bovine modified Cohn Fraction V, pH 5.2 lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a modification of the Cohn procedure, including a proprietary heat-shock method and further purification steps by extensive membrane dialysis and filtration. Suitable as protein standard, in ELISA and blotting techniques, as diluent/stabilizer in diagnostic systems and stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF) min. 96.0 %
pH (10 % in H₂O) 5.0 – 5.6

Cat.No.	Size	EUR
11941.01	25 g	45,00
11941.02	100 g	145,00

■ Albumin bovine modified Cohn Fraction V, pH 7.0 lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a modification of the Cohn procedure, including a proprietary heat-shock method and further purification steps by extensive membrane dialysis and filtration. Suitable as protein standard, in ELISA and blotting techniques, as diluent/stabilizer in diagnostic systems and in serology and as stabilizer for isolated enzymes, peptides or antibodies.

Assay (CAF) min. 98.0 %
pH (10 % in H₂O) 6.5 - 7.5
Protease max. 0.005 U/mg

Cat.No.	Size	EUR
11943.01	25 g	32,00
11943.02	100 g	105,00
11943.03	500 g	395,00

■ Albumin bovine Fraction V receptor grade lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock fractionation with additional solvent treatment. Contains extremely low levels of heavy metals, alkaline earths, fatty acids, and low molecular weight impurities. First choice for diagnostic systems; excellent as a protective agents for enzymes, antibodies etc.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
Total lipids (mg/g)	max. 3.5
Fatty acids (mg/g)	max. 1
Iron (μg/g, AA)	max. 5
Heavy metals (μg/g, AA)	max. 20
Calcium (mg/g, AA)	max. 0.5
IgG	not detectable

Cat.No.	Size	EUR
11924.01	5 g	19,00
11924.02	25 g	65,00
11924.03	100 g	201,00
11924.04	500 g	795,00

■ Albumin bovine Fraction V, Protease-free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process; double heated to insure inactivation of proteolytic activity. Excellent for protease sensitive immunoassays. Useful as stabilizing agent for proteins or enzymes in buffers or for lyophilization. Stabilizer for long-term storage of highly diluted antibodies. Essential component for hybridization techniques. Blocking agent to prevent non-specific binding of proteins to microtiter wells in ELISA systems.

Assay (CAF)	min. 98.0 %
Protease (Casein hydrolysis)	not detectable
pH (7 % in H ₂ O)	6.8 - 7.2
Moisture (KF)	max. 5.0 %
IgG	not detectable

Cat.No.	Size	EUR
11926.01	5 g	21,00
11926.02	25 g	57,00
11926.03	100 g	190,00
11926.04	500 g	745,00

■ Albumin bovine Fraction V, Fatty Acid Free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Produced by a proprietary heat-shock/solvent fractionation process. Suitable for in-vitro binding and transport studies and in diagnostic systems.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 - 7.2
Total lipids (mg/g)	max. 2
Fatty acids (mg/g)	max. 0.2
Moisture (KF)	max. 5.0 %

Cat.No.	Size	EUR
11932.01	5 g	37,00
11932.02	25 g	142,00
11932.03	100 g	478,00

■ Albumin bovine Fraction V, Protease and Fatty Acid free diagnostic grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin, especially designed for protease-sensitive immunoassays, such as RIA and EIA. Suitable as protein standard, diluent, enzyme stabilizer. Can be used also in hybridization and nucleic acid based assays as well as in fatty acid sensitive cell culture systems.

Assay (CAF)	min. 98.0 %
pH (10 % in H ₂ O)	6.5 - 7.5
Protease	max. 0.005 U/mg
Fatty acids	max. 0.01 %
IgG	not detected

Cat.No.	Size	EUR
11945.01	10 g	26,00
11945.02	25 g	52,00
11945.03	100 g	165,00
11945.04	500 g	675,00

■ Albumin bovine Low Hormone lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Albumin purity	> 97.0 %
Total protein	> 92.0 %
pH (10 % solution)	6.5 - 7.4
Mesophilic germs	< 100 CFU/g
Hormones:	
FT4	< 0.04 pg/mg
FT3	< 0.006 pg/mg
Insulin	< 0.002 μU/mg

Cat.No.	Size	EUR
11947.01	10 g	30,00
11947.02	25 g	65,00
11947.03	100 g	185,00

■ Albumin bovine Fraction V, pH 7.0 Life Science grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin ideal for use in biotechnology, diagnostics, research and other life science applications.

First isolated by a proprietary heat shock/organic solvent process and further purified by non-solvent based methodologies to reduce IgG and endotoxins to very low levels.

Contains >90 % monomeric albumin that retains many of the binding, transfer and physical properties of native albumin.

Purity (CAF)	≥ 98.0 %
pH (1 % in 0.15 NaCl)	6.8 - 7.2
Moisture (Lod)	≤ 5.0 %
Heavy metals	≤ 20 ppm
IgG	≤ 50 μg/g
Mycoplasma	none detected
Viral agents	none detected

Cat.No.	Size	EUR
11946.01	25 g	77,00
11946.02	100 g	225,00

■ Albumin bovine Fraction V, pH 7.0

microbiological grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as albumin stabilizer. The product is furthermore solvent-treated and thoroughly diafiltered. Specially developed for the growth of leptospira, treponemas and other fastidious microorganisms such as mycobacteria, trypanosomes, other protozoans etc.

Assay (CAF) min. 98.0 %
pH (7% in H₂O) 6.8 - 7.2

Cat.No.	Size	EUR
11934.01	25 g	52,00
11934.02	100 g	165,00
11934.03	500 g	650,00

■ Albumin bovine cell culture grade

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Cohn Analog™. Specially purified albumin with an almost native composition of lipids, fatty acids and other cofactors which are important for cell culture. Suitable as cell growth supplement.

Purity (CAF) min. 96.0 %
pH (10% in H₂O) 6.5 - 7.5
Endotoxins max. 3 EU/mg

Cohn Analog = registered trademark of Proliant Biologicals, USA.

Cat.No.	Size	EUR
47330.01	10 g	39,00
47330.02	25 g	77,00
47330.03	100 g	225,00

■ Albumin bovine Low Endotoxin biotechnology grade

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113. Suitable as growth promoter in serum-free media for the cultivation of animal cells and as supplement in microbiological media.

Assay (CAF) min. 97.0 %
pH (7% in H₂O) 5.0 - 6.0
Moisture (KF) 0 - 8.0 %
Endotoxin (LAL) max. 10 EU/mg
IgG not detectable

Cat.No.	Size	EUR
47321.01	25 g	50,00
47321.02	100 g	185,00
47321.03	500 g	795,00

■ Albumin bovine Fraction V, Very Low Endotoxin lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as nutrient in serum-free cell culture media. Suitable in perfusion media for hormone response studies and as hapten carrier for antibody production.

Assay (CAF) min. 98.0 %
pH (7% in H₂O) 6.8 - 7.2
Moisture (KF) max. 5.0 %
Endotoxin (LAL) max. 2 EU/mg

Cat.No.	Size	EUR
47324.01	1 g	24,00
47324.02	5 g	57,00
47324.03	25 g	225,00

■ Albumin bovine Fraction V, Very Low Endotoxin, Fatty Acid Free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, followed by treatment to lower fatty acids and lipids. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as growth factor in albumin supplemented culture media for animal cells and microorganisms. Excellent growth medium supplement for hybridomas and the production of monoclonal antibodies. Suitable for in-vitro binding and transport studies.

Assay (CAF) min. 98.0 %
pH (7% in H₂O) 6.8 - 7.2
Total lipids (mg/g) max. 2
Fatty Acids (mg/g) max. 0.2
Moisture (KF) max. 5.0 %
Endotoxin level max. 2 EU/mg
(by Limulus Amebocyte Lysate)

Cat.No.	Size	EUR
47299.02	1 g	26,00
47299.03	5 g	90,00
47299.04	25 g	380,00

■ Albumin bovine, 30 % Solution Polymer Enhanced

(BSA)

M_r ca. 67 000

WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Higher avidity exclusively controlled through pure albumin polymerisation. Does not contain artificial avidity enhancers or high molecular weight agglutination potentiators (e.g. PVP, gum acacia, or dextran). Does not contain caprylic acid or other stabilizers. IgG not detectable. Suitable as diluent/stabilizer in various RIA and EIA test systems, for various serological reagents, and for cross-matching procedures and antibody screening or titration.

Protein (Biuret) 29 - 31 g/dL
pH 7.2 - 7.4
NaCl (coulometric titrator) 0.6 - 0.7 g/dL
Preservative (sodium azide) 0.08 - 0.12 g/dL

Cat.No.	Size	EUR
11937.01	25 ml	30,00
11937.02	100 ml	88,00

Human Serum Albumins

Human serum albumin is typically used as a supplement in cell culture to increase the growth and productivity of cells and increase overall cell health. Serum albumin carries and delivers important nutrients to cells. Albumin maintains the stability of cell membranes, hormones and growth peptides. It binds toxins and free radicals to reduce damage to cells. In serum-free media, serum albumin is often used in place of fetal bovine serum. It has been effectively used for cell washing and cryopreservation.

■ Albumin human lyophil.

M_r ca. 67 000 ◆ CAS [70024-90-7]

HS 35029020

Storage temperature +2 °C to +8 °C

Suitable as cell culture supplement that functions as a carrier protein for fatty acids, growth factors, trace minerals and protects cells from damage both physically and by binding toxins. Diluent/stabilizer for antisera, enzymes, and sensitive biopolymers in order to maintain particular properties.

Each lot is tested and found to be negative for antibodies to HIV-1, HIV-2, HCV, HTLV-1, HTLV-2 and HBsAg, for syphilitic serology and for HIV-1 and HCV RNA.

Total protein > 92.0 %

HSA purity > 97.0 %

pH (10 % in H₂O) 6.5 – 7.4

Cat.No.	Size	EUR
11877.01	1 g	33,00
11877.02	5 g	89,00
11877.03	25 g	345,00

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24 hours per day, 7 days a week.

Antibiotics

Antibiotics are low molecular weight secondary metabolites produced by certain strains of bacteria (mainly *Bacillus* species) and fungi (above all *Streptomyces*). At low concentrations, they are either bactericidal by killing other microorganisms or bacteriostatic by reversibly inhibiting growth. The concept of antibiotics includes today also chemically or biochemically synthesized derivatives as well as substances from plants and animals with antibiotic activity. Antibiotics can be classified according to their mechanism of action.

The major targets in the cell are:

- Cell Wall Synthesis
- Transcription and Replication
- Protein Synthesis
- Structure and Function of Cell Membranes

Besides, antibiotics can interact quite specifically in various metabolic pathways.

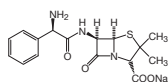
In the research area, antibiotics are used in cell culture to prevent the growth of contaminating bacteria, fungi and mycoplasma. In Molecular Biology, some antibiotics can be used for the selection of resistant cell clones. Due to their specific mechanism of action, antibiotics are also valuable tools in the elucidation of cellular functions.

In the following section, our antibiotics program is listed according to their mechanism of action.

Inhibitors of Bacterial Cell Wall Synthesis

■ Ampicillin-Na-salt molecular biology grade

(6-[D- α -aminophenylacetamido]penicillanic acid; D(-)- α -aminobenzylpenicillin)
 $C_{16}H_{18}N_3O_4S \cdot Na$ $\diamond$ M_r 371.4 $\diamond$ CAS [69-52-3]



DANGER
 H317-H334 $\diamond$ EINECS 200-708-1 $\diamond$ WGK 1 $\diamond$ HS 29411000
 Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin. Used in molecular biology for the selection of resistant bacteria. Solubility in water: 1 part in 2 parts H₂O. Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

References:

1. Davies, J. & Smith, D.J. (1978) Ann. Rev. Microbiol. **32**, 469

Cat.No.	Size	EUR
13399.01	10 g	36,00
13399.02	25 g	62,00
13399.03	100 g	195,00

■ Ampicillin-Na-salt research grade

(6-[D- α -aminophenylacetamido]penicillanic acid; D(-)- α -aminobenzylpenicillin)
 $C_{16}H_{18}N_3O_4S \cdot Na$ $\diamond$ M_r 371.4 $\diamond$ CAS [69-52-3]



DANGER
 H317-H334 $\diamond$ EINECS 200-708-1 $\diamond$ WGK 1 $\diamond$ HS 29411000
 Storage temperature +2 °C to +8 °C

Ph. Eur. Semi-synthetic derivative of penicillin.

Solubility in water: 1 part in 2 parts H₂O. Inhibitor of bacterial cell wall synthesis.

Assay 91.0 - 102.0 %

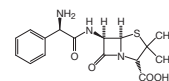
References:

1. Nguyen-Disteché, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size	EUR
13398.01	25 g	36,00
13398.02	100 g	97,00

■ Ampicillin trihydrate research grade

(6-[D(-)- α -aminophenylacetamido]penicillanic acid; D(-)- α -aminobenzylpenicillin)
 $C_{16}H_{19}N_3O_5S \cdot 3H_2O$ $\diamond$ M_r 403.5 $\diamond$ CAS [7177-48-2]



DANGER
 H317-H334 $\diamond$ EINECS 200-709-7 $\diamond$ WGK 1 $\diamond$ HS 29411000

Ph. Eur. Semi-synthetic derivative of penicillin. Inhibitor of cell wall synthesis in *E. coli*. Soluble 1 part in 150 parts H₂O as well as in diluted acids and bases. Insoluble in alcohol.

Assay (titr.) 96.0 - 100.5 %

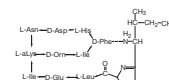
References:

1. Nguyen-Disteché, M. et al. (1974) Eur. J. Biochem. **41**, 457-63

Cat.No.	Size	EUR
13397.01	10 g	24,50
13397.02	25 g	48,00
13397.03	100 g	145,00

■ Bacitracin research grade

(Bacitracin; Ginebatine)
 M_r ca. 1422 $\diamond$ CAS [1405-87-4]



WARNING
 H315-H317-H319-H335 $\diamond$ EINECS 215-786-2
 $\diamond$ WGK 2 $\diamond$ HS 29419000

Storage temperature +2 °C to +8 °C

Ph. Eur. Min. 60 000 IU/g. Main component Bacitracin A. Bacteriocidal activity requires divalent cations like Zn⁺⁺ (1); Peptide antibiotic; inhibitor of peptidoglycan synthesis.

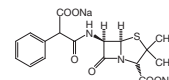
References:

1. Scogin, D. et al. (1980) Biochemistry **19**, 3348-52

Cat.No.	Size	EUR
14420.03	5 g	28,00
14420.02	25 g	75,00

■ Carbenicillin-Na₂-salt research grade

(α -Carboxybenzylpenicillin-disodium salt)
 $C_{17}H_{16}N_2O_6S \cdot Na_2$ $\diamond$ M_r 422.37 $\diamond$ CAS [4800-94-6]



DANGER
 H317-H334 $\diamond$ EINECS 225-360-8 $\diamond$ WGK 1 $\diamond$ HS 29411000

Storage temperature +2 °C to +8 °C

Semisynthetic derivative of benzylpenicillin G. Inhibitor of bacterial cell wall synthesis. Active above all against gram-negative bacteria, less against gram-positive. Used in molecular biology for selection of resistant strains (2). In plant cell culture often in combination with streptomycin or nystatin to prevent bacterial contamination (3,4). Effect on somatic embryo genesis (5).

References:

1. Butler et al. (1970) J. Infec. Dis. **122**, Suppl. 81
2. Sambrook, J. et al. (2001) A Laboratory Manual, 3rd ed., Cold Spring Harbor, NY
3. Horsch, R.B. a. King, J. (1983) Plant Cell Tiss. Organ Cult. **2**, 21-8
4. Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
5. Sarma, K.S. Et al. (1995) J. Exp. Bot. **46**, 1779-81

Cat.No.	Size	EUR
15875.01	250 mg	19,00
15875.02	1 g	44,00
15875.03	5 g	165,00

■ Cefotaxime-Na-salt research grade

(Claforan)

$C_{16}H_{16}N_5O_7S_2 \cdot Na$ ♦ M_r 477.5 ♦ CAS [64485-93-4]

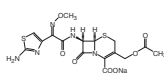
EINECS 264-915-9 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Cephalosporin derivative; β -lactamase resistant antibiotic. Effective against gram-positive and gram-negative bacteria (1). Optimal pH for stability in aqueous solution, 4.3 - 6.2 (2).

References:

1. Young, P.M. et al. (1984) Plant Sci. Lett. **34**, 203-9
2. Das Gupta, V. (1984) J. Pharm. Sci. **73**, 565-7



Cat.No.	Size	EUR
16382.02	1 g	73,00

■ D-Cycloserine

([(R)-4-Amino-3-isoxazolidinone])

$C_3H_6N_2O_2$ ♦ M_r 102.1 ♦ CAS [68-41-7]

EINECS 200-688-4 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Antibiotic from *Streptomyces griseus* against mycobacteria. Inhibitor of bacterial cell wall synthesis. Antimetabolite of D-alanine.

Activity min. 900 µg/mg
MP (°C) ca. 150 (dec.)

Cat.No.	Size	EUR
17686.01	1 g	39,00
17686.02	5 g	140,00

■ Penicillin G-K-salt research grade

(Benzylpenicillin potassium)

$C_{16}H_{17}N_2O_4S \cdot K$ ♦ M_r 372.5 ♦ CAS [113-98-4]

EINECS 204-038-0 ♦ WGK 1 ♦ HS 29411000

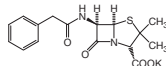
Storage temperature +2 °C to +8 °C

Ph. Eur. β -Lactam antibiotic. Inhibitor of bacterial cell wall synthesis. Binds to the active site of a transpeptidase which is involved in the synthesis of murein, a major component of the bacterial cell wall. Frequently used in cell culture media to prevent the growth of contaminating bacteria (2), often in combination with streptomycin (3-5).

Assay (HPLC) min. 96.0 %

References:

1. Keller, N.P. et al. (2005) Nature Reviews Microbiology **3**, 937-47
2. Wang, Z. et al. (2000) Anal. Chem. **72**, 2001-7
3. Haraguchi, N. et al. (2006) Stem Cells **24**, 506-13
4. Souza, G.R. Et al. (2006) PNAS **103**, 1215-20
5. Pedersen, I.M. Et al. (2007) Nature **449**, 919-22



Cat.No.	Size	EUR
31749.04	25 g	22,00
31749.03	100 g	58,00

■ Vancomycin HCl

$C_{66}H_{75}Cl_2N_9O_{24} \cdot HCl$ ♦ M_r 1485.7 ♦ CAS [1404-93-9]



WARNING

H317 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph.Eur. Mixture of glycopeptide antibiotics. Min. 1050 I.E./mg. Major component: Vancomycin B: min. 93 % (HPLC). Bactericidal against gram positive and some Gram-negative bacteria (*Neisseria* sp.). Inhibits formation of murein during cell wall synthesis. Suitable for cell culture.

References:

1. McIntyre, J.J. et al. (1999) Biotechnol. Bioengineering **62**, 576-82
2. Daniel, R.A. a. Errington, J. (2003) Cell **113**, 767-76
3. Severin, A. et al. (2004) J. Biol. Chem. **279**, 3398-407
4. Muchova, K. et al. (2011) FEMS Microbiol. Lett. **325**, 92-8

Cat.No.	Size	EUR
38125.01	250 mg	32,00
38125.02	1 g	94,00
38125.03	5 g	360,00

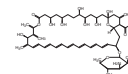
Inhibitors of Cell Membrane Functions

■ Amphotericin B solution sterile filtered

(Fungizone®)

HS 38220000

Storage temperature -15 °C to -25 °C



Macrocyclic polyene antibiotic isolated from *Streptomyces nodosus*. Used in cell and tissue culture against the contamination and growth of yeast and molds. Mechanism of action: binds to cell membrane sterols, especially ergosterol, resulting in a damage of membrane permeability and leakage of intracellular potassium and magnesium ions.

0.25 mg/ml in water. For use, dilute 1:100 (ca. 2.5 µg/ml).

Contains Na-deoxycholate.

Fungizone® = registered trademark of E.R. Squibb

References:

1. Walls, E.V. a. Kay, J.E. (1982) Immunology **47**, 115-21
2. Hartsel, S. a. Bolard, J. (1996) Trends Pharmacol. Sci. **17**, 445-9
3. Ellis, D.(2002) . J. Antimicrob. Chemother. **49** (suppl.), 7-10

Cat.No.	Size	EUR
47982.01	25 ml	38,00

■ Calcium Ionophore A 23187 research grade

(A 23187; Calciomycin free acid)

$C_{29}H_{37}N_3O_6$ ♦ M_r 523.6 ♦ CAS [52665-69-7]

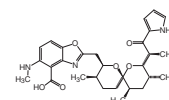


WARNING

H302-H312-H332 ♦ EINECS 258-084-1 ♦

WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Free acid; crystalline; Increases the permeability of biological membranes with high selectivity for divalent cations (Ca, Mg) in contrast to other cations (1). Protect from light.

Purity (HPLC) min. 97.0 %

References:

1. Ackerman, K.E.O. et al. (1983) Biochim. Biophys. Res. Commun. **113**, 171-7
2. French, J.K. et al. (1987) FEBS Lett. **212**, 242-6
3. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
4. Martin, G. et al. (2005) Human Reproduction **20**, 3459-68
5. Shi, Y. et al. (2007) Br. J. Pharmacol. **150**, 624-32
6. Verma, A. et al. (2011) Cell Calcium **50**, 510-22

Cat.No.	Size	EUR
77098.01	5 mg	75,00
77098.02	10 mg	116,00

■ Colistin sulfate

(Polymyxin E sulfate)

$C_{53}H_{104}N_{16}O_{21}S_2$ ♦ M_r 1365.6 ♦ CAS [1264-72-8]



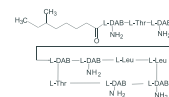
DANGER

H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦

IATA 6.1 III UN2811 ♦ EINECS 215-034-3 ♦

WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Ph. Eur. Peptide antibiotic. Mixture of the sulfates of polypeptides produced by certain strains of *Bacillus polymyxa* var. *colistinus*. Acts mainly against Gram-negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Soluble in water; stable between pH 2 - 6 at 4 °C. Protect from light.

Assay (HPLC) min. 77.0 %

(sum of polymyxins E1, E2, E3,

E1 - I and E1 -7 MOA)

References:

1. Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63

Cat.No.	Size	EUR
17420.01	250 mg	36,00
17420.02	1 g	98,00

■ **Gramicidin** research grade

(Gramicidin D)

M_r ca. 2000 ♦ CAS [1405-97-6]

EINECS 215-790-4 ♦ WGK - ♦ HS 29419000

Ph. Eur. Polypeptide antibiotic from *Bacillus brevis* (Dubos). Mixture of several components. Main component: gramicidin A1, others: gramicidins A2, B1, C1 and C2. Antibiotic against grampositive bacteria. Channel forming antibiotic: 2 molecules of gramicidin form a channel through the cell membrane which is specific for monovalent cations esp. for potassium. Divalent cations and anions cannot pass through this channel.

Potency min. 900 IU/mg

Assay (HPLC) min. 95.0 %

(sum of A1, A2, B1, C1 and C2)

References:

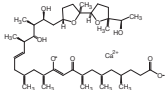
1. Watanabe, Sadao a. Watanabe, Shigenobu (1989) J. Membr. Sci. **44**, 253-63
2. Wallace, B.A. (1990). Annu. Rev. Biophys. Biophys. Chem. **19**, 127-57
3. Andersen, O.S. et al. (2005) Nanobioscience **4**, 10-20
4. Kelkar, D.A. a. Chattopadhyay, A. (2007) Biochim. Biophys. Acta **1768**, 2011-25

Cat.No.	Size	EUR
24150.01	100 mg	29,00

■ **Ionomycin-Ca-salt** research gradeC₄₁H₇₀O₉·Ca ♦ M_r 747.1 ♦ CAS [56092-82-1]**WARNING**

H302-H312-H332 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Ionophore polyether antibiotic from *Streptomyces conglobatus*. Highly specific for bivalent ions, more effective than A 23187 as a Ca²⁺ ionophore. Active against Gram-positive bacteria. Used for studies on Ca²⁺ transport through membranes (1,2,4,5); induces apoptosis (3,6,7).

Purity (HPLC, TLC) min. 98.0 %

MP min. 198 °C

References:

1. Beeler, T.J. et al. (1979) J. Biol. Chem. **254**, 6229-31
2. Erdahl, W.L. et al. (1994) Biophys. J. **66**, 1678-93
3. Gil-Parrado, S. et al. (2002) J. Biol. Chem. **277**, 27217-26
4. Abramov, A.Y. a. Duchon, M.R. (2003) Cell Calcium **33**, 101-12
5. Caverra, M.S. et al. (2003) J. Exp. Zool. A. Comp. Exp. Biol. **297**, 130-7
6. Mc. Collum, A.T. et al. (2004) J. Neurosci. Res. **76**, 104-9
7. Baines, C.P. et al. (2005) Nature **434**, 658-62
8. Zhou Y. et al. (2010) Nature Struct. Mol. Biol. **17**, 112-6

Cat.No.	Size	EUR
26379.01	1 mg	95,00

■ **Nystatin min. 4 400 units/mg** research grade

(Fungicidin; Mycostatin)

C₄₇H₇₅NO₁₇·2H₂O ♦ M_r 926.13 ♦ CAS [1400-61-9]

EINECS 215-749-0 ♦ HS 29419000

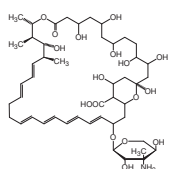
Storage temperature +2 °C to +8 °C

Ph. Eur. Polyene macrolide antibiotic isolated from *Streptomyces noursei*. Used in animal and plant cell cultures against fungi and yeasts. Forms complexes with ergosterol in the fungal cell membrane resulting in the formation of pores and loss of ions and small molecules.

References:

1. Chong, C.N. et al. (1970) Tetrahedron Lett. **59**, 5145-8
2. Coutinho, A. et al. (2004). Biophys. J. **87**, 3264-76
3. Leifert, C. et al. (1991) J. Microbiol. Biotechnol. **7**, 452-69
4. Constabel, F. a. Shyluk, J.P. (1994): Plant Cell and Tissue Culture, eds. I.K. Vasil a. T.A. Thorpe; pp 3-15. Springer Netherlands
5. Banu, K.S. et al. (2001) Endocrine Pathol. **12**, 315-27
6. Wang, A. et al. (2005) Appl. Environ. Microbiol. **71**, 8397-401
7. Funkenstein, B. et al. (2006) Tissue and Cell **38**, 399-415

Cat.No.	Size	EUR
29870.01	1 g	20,00
29870.02	10 g	55,00

■ **Polymyxin-B-sulfate** research grade

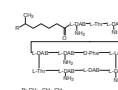
(Aerosporin)

CAS [1405-20-5]

**WARNING**

H302 ♦ HS 38210000

Storage temperature +2 °C to +8 °C



Ph. Eur. Mixture of the sulfates of polypeptides produced by the growth of certain strains of *Bacillus polymyxa*, the main component being Polymyxin B1.

Assay (HPLC): sum of Polymyxins B1, B2, B3 and B1-I min. 80 %; Polymyxin B3 max. 6 %; Polymyxin B1-I max. 15 % (all data based on dried substance).

Peptide antibiotic that mainly acts against Gram-negative bacteria. Causes changes in membrane structure resulting in leakage of small molecules. Used in cell culture media against the contamination of bacteria or in other media for suppression of pathogenic germs (2,3). Inhibitor of the mitogenic response to lipopolysaccharide (4).

References:

1. Storm, D.R. et al. (1977) Ann. Rev. Biochem. **46**, 723-63
2. Kwak, B. et al. (2000) Nature Medicine **6**, 1399-1402
3. Alvarez-Dolado, M. et al. (2003) Nature **425**, 968-73
4. Jacobs, D.M. a. Morrison, D.C. (1977) J. Immunol. **118**, 21-7
5. Asea, A. et al. (2000) Nature Medicine **6**, 435-42

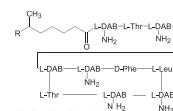
Cat.No.	Size	EUR
47976.03	1 g	38,00

■ **Polymyxin-B-sulfate solution** sterile filtered

HS 38220000

Storage temperature -15 °C to -25 °C

Activity 10,000 IU/ml.



Cat.No.	Size	EUR
47975.01	25 ml	24,00

■ **Rapamycin from *Streptomyces hygroscopicus*** research grade

(RAPA; Sirolimus; mTOR Inhibitor)

C₅₁H₇₉NO₁₃ ♦ M_r 914.2 ♦ CAS [53123-88-9]

WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Macrocytic antibiotic which acts by selectively blocking the transcriptional activation of cytokines, thereby inhibiting cytokine production. It is bioactive only when bound to immunophilins. Potent immunosuppressant, possesses both antifungal and antineoplastic properties.

Assay (HPLC, TLC)

min. 97.0 %

References:

1. Seghal, S.N. et al. (1975) J. Antibiot. **28**, 727
2. Weyrich, A.S. et al. (1998) PNAS **95**, 5556-61
3. Guba, M. et al. (2002) Nature Medicine **8**, 128-35
4. Jacinto, E. et al. (2004) Nature Cell Biol. **6**, 1122-8
5. Saiardi, A. et al. (2005) PNAS **102**, 1911-4
6. Xie, M.W. et al. (2005) PNAS **102**, 7215-20
7. Homberger, T.A. a. Shu Chien (2006) J. Cell. Biochem. **97**, 1207-16
8. Mizushima, N. et al. (2008) Nature **451**, 1069-75
9. Levine, B. a. Kroemer, G. (2009) Cell Death and Differentiation **16**, 1-2

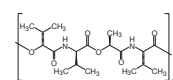
Cat.No.	Size	EUR
34145.01	1 mg	190,00

■ **Valinomycin** research grade

(cyclo(Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val-Lac-Val-D-Hiv-D-Val))

C₅₄H₉₀N₆O₁₈ ♦ M_r 1111.3 ♦ CAS [2001-95-8]**DANGER**

H300-H310-H330 ♦ GGVS/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦ EINECS 217-896-6 ♦ WGK 3L ♦ HS 29419000



Cyclopeptide-antibiotic. Affects potassium permeability of biomembranes. D-HIV = Hydroxy-isovaleric acid, Lac = lactic acid.

Assay (HPLC)

93.0 - 100.0 %

References:

1. Höfer, M. & Pressman, B.C. (1966) Biochemistry **5**, 3919-25
2. Davidson, G.A. & Berman, M.C. (1985) J. Biol. Chem. **260**, 7325
3. Eytan, G.D. et al. (1990) J. Biol. Chem. **265**, 12949

Cat.No.	Size	EUR
38076.02	10 mg	32,00
38076.03	50 mg	98,00
38076.04	250 mg	340,00

Inhibitors of Protein Synthesis

■ Chloramphenicol research grade

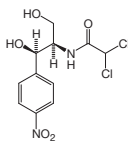
(Chloromycetin; D-threo-2,2-Dichloro-N-[β-hydroxy-α(hydroxymethyl)-β-(4-nitrophenyl)ethyl]acetamide; D-threo-2-Dichloroacetamido-1-(4-nitrophenyl)-1,3-propanediol)
 $C_{15}H_{12}Cl_2N_2O_5$ ♦ M_r 323.1 ♦ CAS [56-75-7]



DANGER

H317-H334-H340-H350-H361d ♦

EINECS 200-287-4 ♦ WGK 3 ♦ HS 29414000



Ph. Eur. Blocks bacterial protein synthesis by inhibiting the peptidyl transferase activity of the 50S ribosomal subunit. Determination in serum by HPLC (1,2), in meat (3). Molecular basis for chloramphenicol resistance (5,6), effects on plants (7). Used for the selection of clones (8).

Assay (UV) 98.0 - 102.0 %

References:

- Wal, J. et al. (1978) J. Chromatogr. **145**, 502-6
- Danzer, L.A. (1983) Clin. Chem. **29**, 856-8
- Rüssel, H. (1978) Chromatographia **11**, 341-3
- Long, K.S. a. Porse, B.T. (2003) Nucl. Acids Res. **31**, 7208-15
- Izard, T. (2001) Protein Sci. **10**, 1508-13
- Schwarz, S. et al. (2004) FEMS Microbiol. Rev. **28**, 519-42
- Zhu, H. et al. (2011) Int. J. Agric. Biol. **13**, 677-82
- Munshi, T. et al. (2013) PLOS ONE **8**(3):e60143

Cat.No.	Size	EUR
16785.03	25 g	15,00
16785.02	100 g	39,00

■ Chlortetracycline-HCl research grade

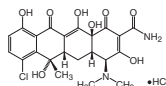
(Aureomycin)

 $C_{22}H_{23}ClN_2O_8 \cdot HCl$ ♦ M_r 515.3 ♦ CAS [64-72-2]


WARNING

H361d ♦ EINECS 200-591-7 ♦ WGK 1 ♦

HS 29413000



Ph. Eur. Produced by *Streptomyces aureofaciens*. Mixture of antibiotics, main component chlortetracycline-HCl. Was the first tetracycline used in therapy. Tetracyclines are bacteriostatic and active against Gram-positive and Gram-negative bacteria and also against intracellular microorganisms like Rickettsia and mycoplasma. Inhibits bacterial protein synthesis by preventing aminoacyl-RNA binding to the A-side of the 30S ribosomal subunit. Used for fluorescence assays on spermatozoa studies (2,3,4).

Assay (HPLC) min. 89.5 %
 Tetracycline HCl max. 8.0 %
 Sum of both components 94.5 - 102.0 %

References:

- Soefftor, R.E.B. et al. (1998) Clin. Experiment. Metastasis **16**, 217-25
- DasGupta, S. et al. (1993) J. Reprod. Fertil. **99**, 135-43
- Collin, S. et al. (2000) J. Andrology **21**, 938-43
- Kaneto, M. et al. (2002) Animal Reprod. Sci. **73**, 197-209
- Lopez, M.I. et al. (2008) J. Agr. Food Chem. **56**, 1553-9

Cat.No.	Size	EUR
14200.02	5 g	20,00

■ Cycloheximide cryst. pure

(Actidione®; β-[2-(3,5-Dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-glutarimide)

 $C_{15}H_{23}NO_4$ ♦ M_r 281.4 ♦ CAS [66-81-9]


DANGER

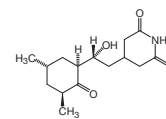
H300-H341-H360D-H411

♦ Muta. 2, Repr. 1B ♦

EG-Index 613-140-00-8 ♦ GGVSE/ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦

EINECS 200-636-0 ♦ WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C **



Glutarimide antibiotic isolated from *Streptomyces griseus*; active against fungi and yeasts, but not against bacteria. Inhibits eukaryotic protein synthesis by blocking the translocation step in the elongation cycle (1,3,8). Blocks translation of mRNA on cytosolic but not on mitochondrial or chloroplast ribosomes (2,4,6).

Assay (TLC) min. 95.0 %
 Assay (HPLC) min. 90.0 %
 MP 98 - 112 °C

Actidione = registered trademark of Upjohn.

References:

- McKeehan, W. a. Hardesty, B. (1969) Biochem. Biophys. Res. Commun. **36**, 625-30
- Neupert, W. et al. (1969) Eur. J. Biochem. **10**, 589-91
- Obrig, T.G. et al. (1971) J. Biol. Chem. **246**, 174-81
- Avadhani, N.G. a. Buetow, D.E. (1972) Biochem. J. **128**, 353-65
- Jilek, F. et al. (2000) Animal Reprod. Sci. **63**, 101-11
- Hanten, J.J. a. Pierce, S.K. (2001) Biol. Bull. **201**, 34-44
- Jin, S. et al. (2008) Am. J. Physiol. **294**, G928-37
- Schneider-Poetsch, T. et al. (2010) Nat. Chem. Biol. **6**, 209-17

Cat.No.	Size	EUR
10700.04	1 g	34,00
10700.02	5 g	98,00
10700.03	25 g	360,00

■ Erythromycin base research grade

 $C_{37}H_{67}NO_{13}$ ♦ M_r 733.92 ♦ CAS [114-07-8]

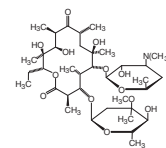
EINECS 204-040-1 ♦ WGK 1 ♦ HS 29415000

Ph. Eur. Mixture of macrolide-glycoside antibiotics produced by a strain of *Streptomyces erythraeus*, the main component being Erythromycin A. Broad-spectrum antibiotic. Inhibitor of protein biosynthesis (2,3): inhibits peptide elongation on the ribosome by binding close to the peptidyl transferase center and blocking the peptide exit tunnel in the large ribosomal subunit (4,5).

Assay (HPLC) 93.0 - 102.0 %
 (Sum of Erythromycin A, B, and C)

References:

- Tanaka, K. et al. (1972) Mol. Genet. **114**, 9-30
- Jagendorf, A.T. a. Michaels, A. (1990) J. Plant Science **71**, 137-45
- Bogorad, L. (2003) Photosynth. Res. **76**, 13-33
- Lovmar, M. et al. (2004) J. Biol. Chem. **279**, 53506-15
- Lovmar, M. et al. (2006) J. Biol. Chem. **281**, 6742-50
- Kohanski, M.A. et al. (2007) Cell **130**, 797-810



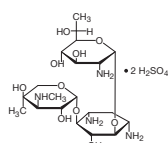
Cat.No.	Size	EUR
21208.02	5 g	26,00
21208.03	25 g	78,00

■ **G 418 sulfate**

(Geneticin®)

 $C_{20}H_{40}N_4O_{10} \cdot 2H_2SO_4$ ♦ M_r 692.7 ♦ CAS [108321-42-2]

WARNING

H302-H332-H361d ♦ WGK 3 ♦
HS 29419000Aminoglycoside antibiotic from *Micromonospora**rhodorangea*. Used for the selection and maintenance of eukaryotic cells expressing the neomycin resistance gene (neo). G418 blocks polypeptide synthesis by inhibiting the elongation step. It is similar in structure to gentamycin B1 but active against both bacteria and eukaryotes.

Potency min. 650 µg/mg

Geneticin = trademark of LTI.

References:

1. Southern, P.J. & Berg, P. (1982) J. Mol. Appl. Genetics **1**, 327-41
2. Bar-Nun, S. et al. (1983) Biochim. Biophys. Acta. **741**, 123-7
3. Hadfield, C. et al. (1990) Curr. Genet. **18**, 303-13
4. Wang, X. et al. (1996) Biotechnol. Bioeng. **49**, 45-51
5. Kunik, T. et al. (2001) PNAS **98**, 1871-6
6. D'Artagnan Villalba, J. et al. (2007) Microbiology **153**, 3852-63
7. Gietz, R.D. a. Schiestl, R.H. (2007) Nature Protocols **2**, 31-4

Cat.No.	Size	EUR
49418.02	250 mg	25,00
49418.03	1 g	55,00
49418.04	10 g	450,00

■ **G 418 solution sterile filtered**

HS 38220000

Storage temperature -15 °C to -25 °C

Formulated to contain 50 mg/ml G 418 base in deionized water.

50 mg G 418 base are approx. 70 mg G 418 sulfate (based on dry weight).

Cat.No.	Size	EUR
47995.01	20 ml	65,00
47995.02	100 ml	240,00

■ **Gentamycin solution sterile filtered**

DANGER

H317-H334-H361D ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Formulated to contain 50 mg/ml gentamycin base in deionized water.

50 mg gentamycin base correspond to approx. 50 000 units of gentamycin and are approx. 80 mg gentamycin sulfate.

Cat.No.	Size	EUR
47991.01	20 ml	70,00
47991.02	100 ml	245,00

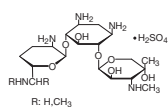
■ **Gentamycin sulfate research grade**

(Gentamicin sulfate)

CAS [1405-41-0]



DANGER

H317-H334-H361 ♦ EINECS 215-778-9 ♦
WGK 1 ♦ HS 29419000Ph. Eur. Min. 590 U/mg. Aminoglycoside antibiotic complex from *Micromonospora purpurea*.Consists of closely related compounds: gentamycin C_{11} , C_{1a} , C_{21} , C_{2a} and C_{2b} ; min. 590 mg gentamicin base/g. Inhibits bacterial protein synthesis by binding to the ribosomal 30S subunit and causing misreading of mRNA (in a similar way as streptomycin). Broad spectrum antibiotic which inhibits growth of many Gram-positive and Gram-negative bacteria including strains which are resistant to chloramphenicol, kanamycin or tetracycline. Frequently used in cell culture, often in combination with amphotericin B, nystatin or penicillin G (1,3).**References:**

1. Watts, J.W. a. King, J.M. (1973) Planta **113**, 271-7
2. Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotics chemistry Vol. 1. Chichester: Horwood, pp. 1-90
3. Eichholtz, D.A. et al. (1979) Plant Physiol. **63**, Abstr. 753
4. Lancini, G. & Parenti, F. (1982) Antibiotics; Springer, New York
5. Nakamura, T. et al. (1991) J. Biol. Chem. **266**, 19432-7
6. Stubbs, A.C. et al. (2001) Nature Medicine **7**, 625-9
7. Manevich, Y. et al. (2002) PNAS **99**, 11599-604
8. Richard, J.P. et al. (2005) J. Biol. Chem. **280**, 15300-6

Cat.No.	Size	EUR
22185.01	1 g	14,00
22185.02	5 g	27,00
22185.03	25 g	98,00

■ **Hygromycin B solution** $C_{20}H_{37}N_3O_{13}$ ♦ M_r 527.53 ♦ CAS [31282-04-9]

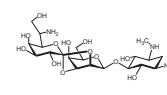
DANGER

H300-H310-H315-H318-H330-

H335 ♦ GGVSE/ADR 6.1 I UN2810 ♦

IATA 6.1 I UN2810 ♦ WGK 2 ♦ HS 29419000

Storage temperature +2 °C to +8 °C



Aminoglycoside antibiotic that inhibits growth of procaryotic micro-organisms (bacteria), eukaryotic microorganisms (yeasts) and mammalian cells.

Inhibits protein synthesis at translocation step; causes misreading of mRNA.

A gene from *E. coli* encoding resistance to hygromycin B can be isolated and cloned by recombinant DNA technology. It is useful for the identification or selection of recombinant clones in various cell types.

500 000 U correspond to approx. 1 ml.

Assay (HPLC)

min. 80.0 %

Microbiological activity

min. 400 000 U/ml

References:

1. Gonzales, A. et al. (1978) Biochim. Biophys. Acta **512**, 459
2. Pardo, J.M. et al. (1985) J. Gen. Microbiol. **131**, 1289
3. Kuhstoss, S. & Rao, R.N. (1983) Gene **26**, 295
4. Ma, H. et al. (1992) Gene **117**, 161
5. Munshi, T. et al. (2013) PLOS ONE **8**(3): e60143

Cat.No.	Size	EUR
25966.01	500.000 U	82,00

■ **Kanamycin acid sulfate research grade** $C_{18}H_{36}N_4O_{11} \cdot 1.7 H_2SO_4$ ♦ M_r 651.2

HS 29419000

Storage temperature +2 °C to +8 °C

BP. Min. 670 U/mg. Kanamycin acid sulfate is a form of kanamycin sulfate prepared by adding sulfuric acid to a solution of kanamycin sulfate and drying by a suitable method. Sulfate content: 23 - 26 %, compared to 15 - 17 % in kanamycin sulfate.

References:

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. **Review:**
Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotic chemistry, vol. 3, Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics; Springer, New York
5. Spena, A. a. Schell, J. (1987) Mol. Gen. Genetics **206**, 436-40
6. Busch, M. et al. (2002) Plant Physiol. **128**, 439-53

Cat.No.	Size	EUR
26898.01	1 g	16,00
26898.02	5 g	37,00
26898.03	25 g	127,00

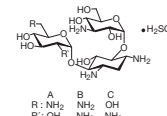
■ **Kanamycin sulfate molecular biology grade** $C_{18}H_{36}N_4O_{11} \cdot H_2SO_4 \cdot H_2O$ ♦ M_r 600.6 ♦ CAS [25389-94-0]

DANGER

H360D ♦ EINECS 246-933-9 ♦ WGK 1 ♦

HS 29419000

Storage temperature +2 °C to +8 °C



Ph. Eur. Min. 750 U/mg. Aminoglycoside antibiotic. Mechanism of action similar to streptomycin sulfate. HPLC (2).

References:

1. Pestka, S. (1971) Annu. Rev. Microbiol. **25**, 487-562
2. Mays, D. et al. (1976) J. Chromatogr. **120**, 193-202
3. Cox, D. et al. (1977) in: Sammes, P.G. (ed.) Topics in antibiotic chemistry, vol. 3, Chichester, Horwood pp. 1-90
4. Lancini, G. & Parenti, F. (1982) Antibiotics; Springer, New York
5. Nakashima, K. et al. (1999) J. Biol. Chem. **274**, 27786-92
6. Vetting, M.W. et al. (2002) Nature Struct. Biol. **9**, 653-8
7. Lambert, C. et al. (2003) Environm. Biol. **5**, 127-32
8. Kataoka, T. et al. (2004) Plant Physiol. **136**, 4198-204

Cat.No.	Size	EUR
26899.01	1 g	16,00
26899.02	5 g	31,00
26899.03	25 g	78,00

■ **Neomycin-sulfate** research grade

$C_{23}H_{46}N_6O_{13} \cdot xH_2SO_4$ ♦ M_r 614.7 (base) ♦
CAS [1405-10-3]



DANGER

H315-H317-H319-H334-H335-

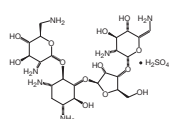
H361d ♦ EINECS 215-773-1 ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Ph.Eur. Min. 680 U/mg. Aminoglycoside antibiotic complex. Inhibits protein biosynthesis by binding to the 30S subunit of bacterial ribosomes. Causes misreading of mRNA.

References:

1. Cox, D. et al. (1977) in: Sammes, P.B. (ed.) Topics in antibiotics chemistry vol. I. Chichester: Horwood, pp. 1-90
2. Lancini, G. & Parenti, F. (1982) Antibiotics, Springer, New York



Cat.No.	Size	EUR
30250.01	10 g	11,00
30250.02	25 g	19,00
30250.03	100 g	45,00

■ **Puromycin-2HCl** research grade

$C_{22}H_{29}N_7O_5 \cdot 2HCl$ ♦ M_r 544.4 ♦ CAS [58-58-2]



WARNING

H302-H341 ♦ EINECS 200-387-8 ♦
WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

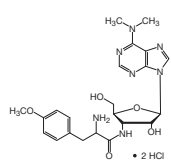
From *Streptomyces albo-niger*. Free base (M_r 471.5)

86 %. Inhibitor of protein biosynthesis. Causes premature termination of the nascent polypeptide chain by its action as aminoacyl-t-RNA analog (in procaryotes and eucaryotes).

Purity (HPLC, TLC) min. 98.0 %

References:

1. Vazquez, D. (1974) FEBS Lett. **40**, 63-84
2. Claeysens, S. et al. (1993) FEBS Lett. **315**, 7



Cat.No.	Size	EUR
33835.01	10 mg	21,00
33835.02	50 mg	74,00
33835.03	250 mg	298,00

■ **Spectinomycin-2HCl pentahydrate**(Actinospectacin; M 141)

$C_{14}H_{24}N_2O_7 \cdot 2HCl \cdot 5H_2O$ ♦ M_r 495.4 ♦ CAS [22189-32-8]



WARNING

H315-H319-H335 ♦ EINECS 244-554-3 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Cell culture tested.

Water-soluble aminoglycoside antibiotic from *Streptomyces sp.* (1,2). Inhibitor of protein synthesis (3). Differs from other aminoglycoside derivatives in that it is bacteriostatic instead of bactericidal.

Stock solution: 10 mg/ml in distilled water, sterile filtered.

For molecular biology applications standard working concentration is 100 µg/ml and in cell culture 7.5 – 20 mg/l.

References:

1. Wagner J. G. et al. (1968) Int. Z. Klin. Pharmacol. Ther. Toxikol. **1**, 261 – 85
2. Wallace, B.J. et al. (1979) Antibiotics **5**, 272 – 303
3. Wallace, P.-C. et al. (1979) in Antibiotics, vol. V, part I. Mechanism of Action of Antibacterial Agents, Springer Verlag Berlin

Cat.No.	Size	EUR
35294.01	5 g	65,00
35294.02	25 g	268,00

■ **Streptomycin sulfate** research grade

$C_{21}H_{39}N_7O_{12} \cdot 1 \frac{1}{2} H_2SO_4$ ♦ M_r 728.7 ♦ CAS [3810-74-0]



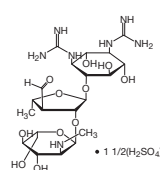
WARNING

H302-H332 ♦ EINECS 223-286-0 ♦ WGK 2 ♦
HS 29412080

Ph. Eur. Min. 720 U/mg. Aminoglycoside antibiotic from *Streptomyces griseus*. Blocks the initiation complex and causes misreading on ribosomes in protein synthesis. Inhibits function only of the 30S subunit.

References:

1. Zierhut, G. et al. (1979) Eur. J. Biochem. **98**, 577-83
2. Wallace, B.J. et al. (1979) in Antibiotics Vol. V, part C; Mechanism of Action of Antibacterial Agents, Springer, Berlin
3. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7



Cat.No.	Size	EUR
35500.01	10 g	13,00
35500.02	100 g	33,00
35500.03	1 kg	199,00

■ **Tetracycline-HCl** research grade

(Achromycin-HCl)

$C_{22}H_{24}N_2O_8 \cdot HCl$ ♦ M_r 480.9 ♦ CAS [64-75-5]



WARNING

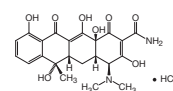
H315-H319-H335-H361d-H362-
H373 ♦ EINECS 200-593-8 ♦ WGK 1 ♦ HS 29413000

USP.Bacteriostatic antibiotic isolated from strains of *Streptomyces*, active against Gram-positive and Gram-negative bacteria and also against intracellular microorganisms like Rickettsia and mycoplasma. Inhibits bacterial protein synthesis by preventing aminoacyl-t-RNA binding to the A-side of the 30S ribosomal subunit. Sample analysis (1,2) Used for the selection of resistant clones (3,4).

Assay min. 900 µg/mg
Heavy metals max. 50 ppm

References:

1. Anderson, C.R. et al. (2005) J. Chromatogr. A **1075**, 23-32
2. Koesukwivat, U. et al. (2007) J. Chromatogr. A **1140**, 147-56
3. Guillaume, G. et al. (2000) FEMS Microbiol. Ecology **32**, 77-85
4. Call, D.R. et al. (2003) Antimicrob. Agents Chemother. **47**, 3290-5
5. Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8
6. Munshi, T. et al. (2013) PLOS ONE **8**(3): e60143



Cat.No.	Size	EUR
35866.01	10 g	13,50
35866.02	100 g	49,00

■ **Tobramycin sulfate** research grade

$(C_{18}H_{37}N_5O_{9/2}) \times 5H_2SO_4$ ♦ M_r 1425.45 ♦ CAS [49842-07-1]



WARNING

H361d ♦ WGK 1 ♦ HS 29419000

Storage temperature +2 °C to +8 °C

USP. Potency: 634 – 739 µg Tobramycin/mg substance. Amino glycoside antibiotic; similar in structure and action to gentamycin sulfate and kanamycin sulfate.

Heavy metals (Pb) max. 30 ppm

References:

1. Giuliano, R.A. et al. (1986) Pharmacol. Experimental Therapeutics **236**, 470-5
2. Petitou, M. (1994) Synthetic Oligosaccharides, ed. P. Kovac, vol. **560**, chapter 2, p. 19-35. ACS Symposium Series
3. Higuchi, M. et al. (1999) Acta Haematol. **102**, 22-30
4. Randell, S.H. et al. (2011) Methods in Molecular Biology vol. **742** (Cystic Fibrosis), 285-310
5. Fulcher, M.L. a. Randell, S.H. (2013) Methods in Molecular Biology vol. **945** (Epithelial Cell Culture) 109-21

Cat.No.	Size	EUR
36562.01	250 mg	52,00

■ **Tylosine-tartrate solution (100x)** sterile filtered

(Anti-PPLO-agent)

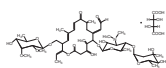
HS 38220000

Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic with large lactone ring. Inhibits bacterial protein synthesis at the ribosomal 50S-subunit. Used for the inhibition of mycoplasma in cell culture. Enhances immune response in chicken.

References:

1. Stewart, S.M. et al. (1969) J. Med. Microbiol. **2**, 287-92.
2. Baba, T. et al. (1998) Poult. Sci. **77**, 1306-11
3. Loftin, K.A. et al. (2005) Environm. Toxicol. Chem. **24**, 782-8



Cat.No.	Size	EUR
47988.01	25 ml	23,00

Inhibitors of Transcription and Replication

■ **Actinomycin D** cryst. research grade(Dactinomycin; Actinomycin C₁)C₆₂H₈₆N₁₂O₁₆ ♦ M_r 1255.5 ♦ CAS [50-76-0]

DANGER

H300 ♦ GGVSE/ADR 6.1 II UN2811 ♦

IATA 6.1 II UN2811 ♦ EINECS 200-063-6 ♦

WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C

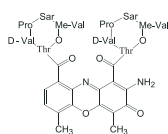
Chromopeptide with antibiotic activity. Contains 2 cyclic peptides bound to the chromophoric phenoxazone ring. Binds specifically to the minor groove of the DNA double helix, and thus prevents it from being a template for RNA synthesis. Antineoplastic agent which inhibits the growth of rapidly dividing cells. Induces apoptosis in cancer cells. Used as a selective agent in cell culture.

Assay (HPLC)

min. 95.0 %

References:

1. Meienhofer, B. & Atherton, E. (1977) Adv. Appl. Microbiol. **16**, 203
2. Kleef, J. et al. (2000) Int. J. Cancer **86**, 399-407
3. Narita, Y. et al. (2000) Cancer Chemother. Pharmacol. **45**, 149-56



Cat.No.	Size	EUR
10710.01	5 mg	24,00
10710.02	25 mg	85,00

■ **Adriamycin HCl Solution**

(Doxorubicin-HCl; 14-Hydroxydaunomycin-HCl)

DANGER



H340-H350 ♦ HS 38220000

Storage temperature +2 °C to +8 °C *

Anthracycline antibiotic, anti-neoplastic agent (1, 2). Inhibits DNA and RNA synthesis by forming complexes with DNA. Modified spectrofluorometric assay for DNA (3).

Composition

2 mg/ml in 0.9 % NaCl

pH

2.7 - 3.3

References:

1. Tritton, T.R. & Yee, G. (1982) Science **217**, 248-50
2. Leto, G. et al. (1990) Anticancer Res. **10**, 265-9
3. Kennedy, D.G. et al. (1987) Anal. Biochem. **167**, 124-7

Cat.No.	Size	EUR
11010.01	1 ml	35,00
11010.02	5 ml	95,00

■ **Aphidicolin** research gradeC₂₀H₃₄O₄ ♦ M_r 338.5 ♦ CAS [38966-21-1]

WARNING

H302-H332-H341 ♦ WGK 1 ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Antibiotic isolated from *Nigrospora oryzae* (1).

Tetracyclic diterpene with antiviral and antimutagenic

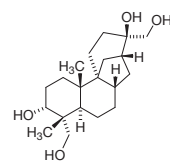
properties. Blocks the cell cycle at early S-phase. Specific inhibitor of α-type polymerase (eucaryotic and viral coded) (2).

Assay (TLC)

min. 97.0 %

References:

1. Hubermann, J.A. (1981) Cell **23**, 647-8
2. Spadari, S. et al. (1982) Trends Biochem. Sci. **7**, 29-32



Cat.No.	Size	EUR
13696.02	1 mg	72,00

■ **Bleomycin-sulfate** lyophil. pure

(Blenoxane)

CAS [9041-93-4]



DANGER

H302-H332-H350-H360D

♦ Carc. 1B, Repr. 1A ♦

EINECS 232-925-2 ♦ WGK 2 ♦ HS 29419000

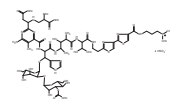
Storage temperature +2 °C to +8 °C

Chemistry and action of bleomycin: Group of glycopeptide antibiotics from *Streptomyces verticillus* with antineoplastic properties by inhibition of DNA synthesis: reacts with DNA and causes breaks in the nucleotide chain.

References:

1. Umezawa, H. (1980) Med. Chem. **16**, 147-66
2. Pavon, V. et al. (1995) Current Microbiol. **30**, 117-20
3. Fattman, C.L. et al. (2001) Free Radical Biol. Med. **31**, 1198-1207
4. Izbicki, G. et al. (2002) Am. J. Physiol. **283**, L1110-6
5. Yamamoto, T. a. Nishioka, K. (2005) Experim. Dermatol. **14**, 81-95
6. Pietruska, J.R. a. Kane, A.B. (2007) Cancer Res. **67**, 3637-45
7. Moodley, Y. et al. (2009) Am. J. Pathol. **175**, 303-13

Cat.No.	Size	EUR
15154.01	1 mg	42,00
15154.02	5 mg	146,00

■ **Chromomycin A₃** research gradeC₅₇H₈₂O₂₆ ♦ M_r 1183.3 ♦ CAS [7059-24-7]

DANGER

H300-H310-H330-H360D ♦

GGVSE/ADR 6.1 I UN2811 ♦

IATA 6.1 I UN2811 ♦ EINECS 230-348-0 ♦ WGK 3L ♦

HS 29419000

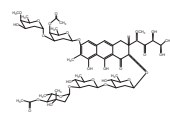
Storage temperature +2 °C to +8 °C

Inhibitor of DNA-dependent RNA-synthesis (1). For fluorescent chromosome banding (2).

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Schweizer, D. (1976) Chromosoma (Berl.) **58**, 307-24

Cat.No.	Size	EUR
17148.01	10 mg	150,00

■ **Mithramycin A** pure

(Aureolic acid; Plicamycin)

C₅₂H₇₆O₂₄ ♦ M_r 1085.2 ♦ CAS [18378-89-7]

WARNING

H302-H332-H341 ♦ WGK 1 ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Similar to chromomycin A₃ in structure and mechanism of action, inhibits RNA synthesis. Forms complexes with DNA (1). Review on structure (2).

Fluorescent antibiotic used for specific staining of DNA in flow cytometry and microscopy.

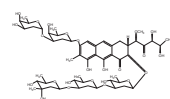
Assay (HPLC, TLC)

min. 95.0 %

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Thiem, J. (1984) Nachr. Chem. Tech. Lab. **32**, 6- 11
3. Sleiman, S.F. Et al. (2011) J. Neurosci. **31**, 6858-70

Cat.No.	Size	EUR
29803.01	2,5 mg	57,00
29803.02	10 mg	175,00

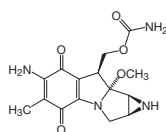


■ **Mitomycin C** lyophil. research grade

$C_{15}H_{18}N_4O_5$ ♦ M_r 334.3 ♦ CAS [50-07-7]



DANGER
H302-H351 ♦ EINECS 200-008-6 ♦
WGK 3L ♦ HS 29419000



Potent anti-tumor antibiotic isolated from *Streptomyces caespitosus*. Belongs to the group of aziridine-containing natural products. Causes intra- and interstrand crosslinks in DNA, which prevent dissociation of the strands, and thus inhibits replication and transcription of DNA. Each vial contains 48 mg sodium chloride as diluent.

References:

1. Tomasz, M. et al. (1987) Science **235**, 1204-8
2. de Klein, A. et al. (2000) Curr. Biol. **10**, 479-82
3. Martin, T.W. et al. (2002) Structure **10**, 933-42
4. Mai, Q. et al. (2007) Cell Res. **17**, 1008-19

Cat.No.	Size	EUR
29805.01	2 mg	49,00
29805.02	5 x 2 mg	210,00
29805.03	10 x 2 mg	415,00

■ **Mitomycin C, carrier-free** research grade

$C_{15}H_{18}N_4O_5$ ♦ M_r 334.3 ♦ CAS [50-07-7]



DANGER
H300-H351 ♦ GGVSE/ADR 6.1 II UN2811 ♦
IATA 6.1 II UN2811 ♦ EINECS 200-008-6 ♦ WGK 3L ♦

HS 29419000

Storage temperature +2 °C to +8 °C

Potent anti-tumor antibiotic isolated from *Streptomyces caespitosus*. Belongs to the group of aziridine-containing natural products. Causes intra- and interstrand crosslinks in DNA, which prevent dissociation of the strands, and thus inhibits replication and transcription of DNA.

Assay (TLC, HPLC) min. 98.0%

References:

1. Tomasz, M. et al. (1987) Science **235**, 1204-8
2. de Klein, A. et al. (2000) Curr. Biol. **10**, 479-82
3. Martin, T.W. et al. (2002) Structure **10**, 933-42
4. Mai, Q. et al. (2007) Cell Res. **17**, 1008-19

Cat.No.	Size	EUR
29800.01	1 mg	30,00
29800.02	5 mg	65,00
29800.03	10 mg	110,00

■ **Novobiocin-Na-salt** research grade

$C_{31}H_{35}N_2O_{11} \cdot Na$ ♦ M_r 634.6 ♦ CAS [1476-53-5]



WARNING
H317-H319 ♦ EINECS 216-023-6 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

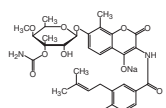
Coumarin-glycoside antibiotic. Inhibitor of bacterial DNA gyrase (1). Mechanism of action (2). Antagonist of heat shock protein 90 (Hsp90) (3,4,5).

Assay (HPLC) min. 90.0%
[α]_D 24 °C/D (c=2.5 in water) -34.0 ° to -38.0 °
MP 215 - 220 °C (dec.)

References:

1. Cozzarelli, N.R. (1980) Science **207**, 953-60
2. Staudenbauer, W.L. (1975) J. Mol. Biol. **96**, 201-5
3. Marcu, M.G. et al. (2000) J. Natl. Cancer Inst. **92**, 242-8
4. Marcu, M.G. et al. (2000) J. Biol. Chem. **275**, 37181-6
5. Sreedhar, A.S. et al. (2003) J. Biol. Chem. **278**, 35231-40

Cat.No.	Size	EUR
30995.01	1 g	39,00

■ **Paclitaxel** research grade

(Taxol®)

$C_{47}H_{51}NO_{14}$ ♦ M_r 853.9 ♦ CAS [33069-62-4]



WARNING
H341-H361ff ♦ HS 29399900
Storage temperature -15 °C to -25 °C

Diterpenoid isolated from the bark of the yew tree (*Taxus brevifolia*). Antitumor and antileukemic agent. Promotes the assembly of stable microtubules and inhibits the disassembly process of microtubules to tubulin. Inhibits DNA synthesis and stimulates the release of TNFα

Assay (HPLC, TLC) min. 97.0 %

Protect from light and moisture.

References:

1. Wani, M.C. et al. (1971) Am. Chem. Soc. **93**, 2325
2. Manfredi, J.J. a. Horwitz, S.B. (1984) Pharmacol. Ther. **25**, 83-125
3. Mitsuuchi, Y. et al. (2000) Cancer Res. **60**, 5390-4
4. Donaldson, K.L. et al. (1994) Int. J. Cancer **57**, 847
5. Gut, I. et al. (2000) Arch. Toxicol. **74**, 437-46
6. Downing, K.H. (2000) Annu. Rev. Cell Dev. Biol. **16**, 89-111

Cat.No.	Size	EUR
31360.01	5 mg	40,00
31360.02	10 mg	70,00
31360.03	50 mg	275,00

■ **Rifampicin** research grade

(Rifampin „Lepetit“; Rifamycin-AMP)

$C_{43}H_{58}N_2O_{12}$ ♦ M_r 822.96 ♦ CAS [13292-46-1]



WARNING
H302-H332 ♦ EINECS 236-312-0 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

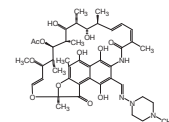
Semisynthetic derivative of rifamycin SV which is produced from certain strains of *Amycolatopsis mediterranei*. Belongs to the group of ansamycin antibiotics. Inhibitor of DNA-dependent RNA-polymerase. Specifically inhibits the initiation step of RNA synthesis.

Assay min. 98.0 - 102.0 %

References:

1. Meilhac, M. et al. (1972) Eur. J. Biochem. **28**, 291-300
2. Ohta, S. et al. (1990) Plant Cell Physiol. **31**, 805-13
3. Vilchez, S. et al. (2000) J. Bacteriol. **182**, 91-9
4. Schwalb, C. et al. (2003) Biochemistry **42**, 9491-7
5. Freiberg, C. et al. (2004) Current Opinion in Microbiology **7**, 451-9

Cat.No.	Size	EUR
34514.01	1 g	35,00
34514.02	5 g	132,00

■ **Inhibitors/Modifiers of other Cell Functions**■ **Brefeldin A** research grade

$C_{16}H_{24}O_4$ ♦ M_r 280.4 ♦ CAS [20350-15-6]



WARNING
H302-H312-H332 ♦ WGK 1 ♦ HS 29419000
Storage temperature -15 °C to -25 °C

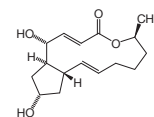
Macrolide antibiotic from *Penicillium brefeldianum*. Specifically inhibits translocation of proteins from the endoplasmic reticulum to the Golgi apparatus.

Assay (TLC) min. 98.0 %

References:

1. Capparelli, A.W. et al. (1993) Am. J. Physiol. **264**, C40-7
2. Cluett, E.B. et al. (1993) J. Cell Biol. **120**, 15-24
3. Driouch, A. et al. (1993) Plant Physiol. **101**, 1363-73
4. Uhlin-Hansen, L. & Yanagishita, M. (1993) Biol. Chem. **268**, 17370-6
5. Calabro, A. & Hascall, V. (1994) J. Biol. Chem. **269**, 22771-8
6. Turi, T.G. et al. (1994) J. Biol. Chem. **269**, 24229-36

Cat.No.	Size	EUR
15100.01	1 mg	38,00
15100.02	5 mg	97,00



■ Cerulenin from *Cephalosporium caerulens* research grade

$C_{12}H_{17}NO_3$ ♦ M_r 223.27 ♦ CAS [17397-89-6]



WARNING
H302-H312-H332 ♦ EINECS 241-424-8 ♦ HS 29419000
Storage temperature +2 °C to +8 °C

Antifungal antibiotic that inhibits sterol and fatty acid biosynthesis. Inhibits HMG-CoA synthetase activity. Induces apoptosis in tumor cell lines. Packaged under argon.

Protect from light!

Assay (TLC) min. 98.0 %

References:

- Omura, S. (1976) Bacteriol. Rev. **40**, 681-697
- Buttke, T.M. a. Ingram, L.O. (1978) Biochemistry **17**, 5282-6
- Omura, S. (1981) Meth. Enzymol. **72**, 520-32
- Pizer, E.S. et al. (1996) Cancer Res. **56**, 2745-7
- Fuuya, Y et al. (1997) Anticancer Res. **17**, 4589-93

Cat.No.	Size	EUR
16487.01	1 mg	33,00

■ Geldanamycin

$C_{29}H_{40}N_2O_9$ ♦ M_r 560.64 ♦ CAS [30562-34-6]

HS 29419000

Storage temperature -15 °C to -25 °C

Potent antitumor antibiotic isolated from *Streptomyces hygroscopicus* var. *Geldanus* with macrolide structure (Benzochinone Ansamycin). Inhibitor of proto-oncogenic protein kinases. A potent inhibitor of the nuclear hormone receptor family. Binds to and inhibits heat shock protein 90 (Hsp90) which is essential for the conformation, stability, and function of many target proteins involved in cell signaling, cell proliferation, gene expression, apoptosis, angiogenesis, and oncogenesis.

Purity (HPLC, TLC) min. 98.0 %

References:

- Ochel, H.-J. et al. (2001) Cell Stress Chaperones **6**, 105-12
- Miyata, Y. (2005) Curr. Pharm. Des. **11**, 1131-8
- Xiao Ming Yu et al. (2005) J. Am. Chem. Soc. **127**, 12778-9
- Sharp, S. a. Workman, P. (2006) Adv. Cancer Res. **95**, 323-48
- Hosoi, T. et al. (2007) Cell Research **17**, 184-6.

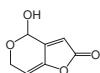
Cat.No.	Size	EUR
22165.02	1 mg	52,00
22165.03	5 mg	130,00

■ Patulin pure

$C_7H_6O_4$ ♦ M_r 154.1 ♦ CAS [149-29-1]



DANGER
H300-H311-H331-H340-H350 ♦ GGVSE/
ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦
EINECS 205-735-2 ♦ WGK 3 ♦ HS 29322985
Storage temperature -15 °C to -25 °C



Mycotoxin; antibiotic from *Aspergillus* and *Penicillium* species; carcinogenic in rats (1). Effect on carbohydrate metabolism (2). Causes breaks in DNA (3). Inhibits aminoacyl-tRNA synthetase (4). Influence on intracellular ion flux and interaction with cellular membranes (5). Antitumor activity (6).

Assay (HPLC, TLC) min. 98 %

References:

- Dickens, F. et al. (1966) Brit. J. Cancer **20**, 134
- Sakthisekaran, D. et al. (1989) Biochem. Int. **19**, 37-51
- Lee, K.S. & Rosenthaler, R.J. (1986) Appl. Environ. Microbiol. **52**, 1046-54
- Arafat, W. et al. (1985) Chem. Biol. Interact. **56**, 333-49
- Hinton, D.M. et al. (1989) J. Biochem. Toxicol. **4**, 47-54
- Seigle-Murandi, F. et al. (1992) Pharmazie **47**, 288-91
- Review:**
Ciegler, A. et al. (1971) Microbial Toxins (A. Ciegler, ed.) Vol. **6**, 409-34, Academic Press

Cat.No.	Size	EUR
31630.01	5 mg	80,00

■ Rapamycin from *Streptomyces hygroscopicus* research grade

(RAPA; Sirolimus; mTOR Inhibitor)

$C_{51}H_{79}NO_{13}$ ♦ M_r 914.2 ♦ CAS [53123-88-9]

WGK 1 ♦ HS 29419000

Storage temperature -15 °C to -25 °C

Macrocyclic antibiotic which acts by selectively blocking the transcriptional activation of cytokines, thereby inhibiting cytokine production. It is bioactive only when bound to immunophilins. Potent immunosuppressant, possesses both antifungal and antineoplastic properties.

Assay (HPLC, TLC) min. 97.0 %

References:

- Seghal, S.N. et al. (1975) J. Antibiot. **28**, 727
- Weyrich, A.S. et al. (1998) PNAS **95**, 5556-61
- Guba, M. et al. (2002) Nature Medicine **8**, 128-35
- Jacinto, E. et al. (2004) Nature Cell Biol. **6**, 1122-8
- Saiardi, A. et al. (2005) PNAS **102**, 1911-4
- Xie, M.W. et al. (2005) PNAS **102**, 7215-20
- Homberger, T.A. a. Shu Chien (2006) J. Cell. Biochem. **97**, 1207-16
- Mizushima, N. et al. (2008) Nature **451**, 1069-75
- Levine, B. a. Kroemer, G. (2009) Cell Death and Differentiation **16**, 1-2

Cat.No.	Size	EUR
34145.01	1 mg	190,00

■ Staurosporine research grade

$C_{28}H_{26}N_4O_3$ ♦ M_r 466.5 ♦ CAS [62996-74-1]



DANGER
H301-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦
IATA 6.1 II UN2811 ♦ WGK 2 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Potent inhibitor of phospholipid/ Ca^{2+} dependent and cyclic nucleotide dependent protein kinases (1, 2, 3). Inhibits also platelet aggregation (4).

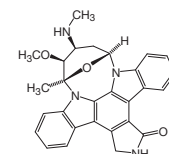
Protect from light!

Assay (HPLC) min. 95.0 %

References:

- Tamaoki, T. et al. (1986) Biochem. Biophys. Res. Commun. **135**, 397
- Oka, S. et al. (1986) Agric. Biol. Chem. **50**, 2723
- Lazdins, J. et al. (1987) Int. J. Cancer **40**, 846
- Hidaka, H. et al. (1984) Biochemistry **23**, 5036

Cat.No.	Size	EUR
35385.02	500 µg	180,00



■ Tunicamycin from *Streptomyces chartreusis*

M_r ca. 840 ♦ CAS [11089-65-9]



DANGER
H300-H330-H373 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ WGK 3L ♦ HS 29419000

Storage temperature +2 °C to +8 °C

Mixture of homologue nucleoside antibiotics. Consists of one residue each of uracil, a C_{11} -aminodeoxy- dialdose (tunicamine), N-acetyl glucosamine and a fatty acid. The various tunicamycins differ from each other in the chain length of their fatty acid component.

Our preparation contains mainly isomers A, B, C, and D whose fatty acid component contain 15, 16, 17, and 18 C-atoms, respectively. Tunicamycin is active against Gram-positive bacteria, yeast, fungi, and viruses. Inhibits N-linked glycosylation and blocks the formation of N-glycosidic protein carbohydrate linkage; inhibits the first step in the lipid-linked saccharide pathway, i.e. the formation of dolichylpyrophosphoryl-GlcNAc. Soluble in DMF and DMSO.

Protect from light. Keep under argon.

Assay (HPLC) max. 98.0 %

References:

- Takatsuki, A. et al. (1971) J. Antibiot. **24**, 215
- Tkacz, J.S. & Lampén, O. (1975) Biochem. Biophys. Res. Commun. **65**, 248
- Ericson, M. et al. (1977) J. Biol. Chem. **252**, 7431
- Takatsuki, A. et al. (1977) Agric. Biol. Chem. **41**, 2307-9
- Elbein, A.D. (1981) Trends Biochem. Sci. **6**, 219-21
- Elbein, A.D. (1987) Methods Enzymol. **138**, 661-709

Cat.No.	Size	EUR
37467.01	5 mg	88,00
37467.02	10 mg	150,00

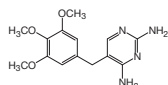
Antimetabolites

■ **Trimethoprim** research grade

(5-(3,4,5-Trimethoxybenzyl)-2,4-diaminopyrimidine)
 $C_{14}H_{16}N_4O_3$ ♦ M, 290.32 ♦ CAS [738-70-5]

EINECS 212-006-2 ♦ WGK 1 ♦ HS 29335995

Storage temperature +2 °C to +8 °C



Ph. Eur. Antibacterial substance; activity in vitro (1). Simultaneous detection with sulfamethazine by HPLC (2). Inhibitor of the bacterial enzyme dihydrofolate reductase.

Assay (titr.) 98.5 - 101.0 %
 Heavy metals (Pb) max. 20 ppm

References:

1. Digrañes, A. et al. (1985) *Chemotherapy* **31**, 466-71
2. Torel, J. et al. (1985) *J. Chromatogr.* **323**, 447-50

Cat.No.	Size	EUR
37049.01	5 g	41,00

Molecular Biology

We offer a complete range of products for isolation, purification and analysis of nucleic acids including highly active enzymes, inhibitors and molecular biology grade reagents.

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For isolation of highly pure and intact DNA and RNA it is critical to use highly specific proteases and nucleases with no extraneous activities. SERVA offers highly purified preparations of enzymes tested for suitability for cell lysis and isolation of nucleic acids.

Cyanase™ Nuclease is ideal for pre-PCR DNA clean-up. The PCR master mix can be treated with Cyanase nuclease for amplicon and DNA removal and the nuclease can then be easily removed by incubation with Cyanase™ Inactivation Resin prior to PCR reaction.

■ **Cyanase™ Inactivation Resin Cartridges**

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase™ Inactivation Cartridges combine 50 µl of Inactivation Resin into a 700 µl silica based spin column for easy removal of Cyanase™ from any reaction. Each spin column is a 10 - 20 µm pore size/polypropylene, snap off base, with sealable screw cap. Reactions are mixed and incubated inside the spin column in the same manner that is used for the standard inactivation resin. After mixing for 20 min, samples are then spun down into a provided collection tube for downstream processing. No worry of contaminating downstream samples with resin, no volume additions!
 Can be used for Pre-PCR treatment of high sensitivity assays. Just treat PCR master mix with Cyanase™, add to column, incubate with resin, and spin down into collection tube. Target and Primers are added after treatment and PCR is run as normal.

- Ideal for high throughput proteomics or nucleic acid dependent applications
- Amplicon and Pre-PCR clean up of master mixes
- Treatment of samples of low volume/unique buffer properties where additional buffer/products are problematic

Kit contains 20 cartridges and 20 collection tubes and caps for sample recovery.

Cyanase = trademark of Ribosolutions, Inc.

Cat.No.	Size	EUR
18544.01	20 reactions	108,00

Products for
Protein Quantification:

see special chapter at p. 124

■ Cyanase™ Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C *

Supplied as solution in 50 mM Tris-HCl pH 8.0, 5 mM MgSO₄, 50 % (v/v) glycerol.

Cyanase is a cloned highly active non-Serratia based non-specific endonuclease that degrades single and double stranded DNA and RNA in as little as 1 minute.

Cyanase is easily removed from samples after the reaction is finished using the Cyanase Inactivation Resin (cat. no. 18543). The resin can be easily filtered or spun down to remove from the sample removing the Cyanase with it.

Because of its unique properties, Cyanase is effective for cell lysate clearance, protein and viral purification and nucleic acid removal from samples.

- Fastest nuclease on the market
- Broad pH range
- Active in higher salt concentrations
- Unaffected by lysozyme or detergent
- Easily inactivated and removed
- Unsurpassed stability, can be stored up to 1 year at room temperature with minimal loss of activity

Concentration	50 u/μl
pH optimum	pH 7.5 - 8.0
Salt optimum	20 mM NaCl
Temperature optimum	24 °C – 37 °C

Unit definition: One Unit is the amount of enzyme that degrades 3 μg of full length λ DNA completely at 37 °C in 1 minute in 50 mM Tris-HCl pH 8.0, 6 mM MnSO₄.

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18542.01	10.000 U	97,00
18542.02	25.000 U	209,00

■ Cyanase™ Inactivation Resin

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase Inactivation Resin is a proprietary blend of Cyanase Inhibitor Protein coupled to Sepharose® Fast Flow Resin creating a novel method for inactivating and removing the Cyanase enzyme prior to downstream applications. No more worries about downstream contamination with nucleases or difficult removal processes which may compromise product integrity.

Average Particle Size: 90 μm in 50 % buffer slurry.

- Removal of Cyanase Nuclease simple and easy in as little as 20 min.
- No optimization needed
- Active over a wide range of conditions
- No interactions with other proteins or targets
- Extremely tight interaction between Cyanase and resin

Cyanase = trademark of RiboSolutions, Inc.

Sepharose = registered trademark of GE Healthcare

Cat.No.	Size	EUR
18543.01	1 ml	72,00
18543.02	5 ml	325,00

■ Deoxyribonuclease I from Bovine Pancreas

min. 3000 Kunitz units/mg lyophil.

(DNase I; Deoxyribonucleodepolymerase; Deoxyribonuclease 5'-oligo-nucleotide hydrolase)

EC 3.1.21.1 ♦ M_r 31 000 ♦ CAS [9003-98-9]

EINECS 232-667-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Cleaves preferentially double-stranded DNA (in the presence of Mg⁺⁺-ions single stranded DNA) in oligonucleotides with 5'-terminal phosphate groups.

Unit definition: 1 Kunitz unit catalyzes an increase in absorption of 0.001 at 260 nm per minute at 25 °C, pH 5.0 when acting on highly polymerized calf thymus DNA (1).

Activity: min. 3000 Kunitz units/mg lyophilisate

References:

1. Kunitz, M. (1950) J. Gen. Physiol. **33**, 349-62
2. Laskowski, M. Sr. (1971) The Enzymes **IV**, 3rd Ed. (Boyer, P.D.ed.) Acad. Press N.Y. 289-311
3. Moore, S. (1981) The Enzymes **XIV**, 3rd Ed. (Boyer, P.D. ed.) Acad. Press N.Y. 281-96
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.83, 10.6-10.12, 15.14, 15.16, 15.27-15.31, 13.24-13.25, 13.28-13.29)

Cat.No.	Size	EUR
18535.01	25 mg	45,00
18535.02	100 mg	135,00

■ Lysozyme from chicken egg white

min. 100 000 units/mg cryst.

(Muramidase; mucopolysaccharide-glycohydrolase; mucopolysaccharide N-acetyl-muramoylhydrolase)

EC 3.2.1.17 ♦ M_r ca. 14 400 ♦ CAS [12650-88-3]



DANGER

H334 ♦ EINECS 235-747-3 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Crystalline powder in hydrochloride form. Lysozyme hydrolyzes the β 1 → 4 linkages of the murein between N-acetylmuramic acid and N-acetyl-D-glucosamin, and degrades the heteroglycan chain to disaccharides. This reaction leads to cell lysis in most Gram-positive bacteria e.g. *Micrococcus luteus*. Lysis can be prevented if the reaction is performed in an isotonic sucrose medium. Under these assay conditions protoplasts are produced which no longer have a cell wall. The lysis of *Micrococcus luteus* cells is used for the activity testing of lysozyme. In Gram-negative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca²⁺ ions are removed by treatment with e.g. EDTA, the murein becomes susceptible to lysozyme. Suitable for hydrolysis of bacterial cell walls and of proteoglycans (1, 2, 4).

Unit definition: 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 7.0, in a suspension of *Micrococcus luteus* cells (reaction volume 3 ml, light path 1 cm) (3).

Isoelectric point: 10.5 - 11.0

Optimum pH: 9.2

References:

1. Imoto, T. et al. (1972) The Enzymes **VII**, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.22, 1.34, 1.36, 1.38, 1.39, 1.29, B.17)
3. Shugar, D. (1952) Biochim. Biophys. Acta **8**, 302-9
4. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
28262.02	2,5 g	28,00
28262.03	10 g	73,00
28262.04	50 g	286,00

■ Pronase E from *Streptomyces griseus* min. 6.0 DMC-U/mg lyophil.

(Streptomyces griseus neutral proteinase; Actinase E)
CAS [9036-06-0]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-909-5 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For structural analysis of proteins (1, 2). Suitable for preparation of bacteriophage lambda DNA (3).

Unit definition: 1 DMC-U (1U) is that amount of enzymatic activity which catalyzes the cleavage of 1 µ-equivalent peptide bond from dimethyl casein per minute at 25 °C, pH 7.5, expressed in terms of the appearance of new terminal amino groups (4).

Activity in other units: ca. 1 000 000 PU-units/g (casein substrate; 40 °C, pH 7.4 (5), ca. 20 000 PUK-units/g (casein substrate, 40 °C, pH 7.5).

Pronase = registered trademark of Calbiochem-Novabiochem Corp.

References:

- Jehanli, A. & Hough, D. (1985) Mol. Immunol. **22**, 557-66
- Tsugita, A. & Akabori, S. (1959) J. Biochem. (Tokyo) **46**, 695-704
- Maniatis, T. et al. (1982) Molecular Cloning - a Laboratory Manual. Cold Spring Harbor Laboratory, p. 85
- Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
- Nomoto, M. & Narashi, Y. (1959) J. Biochem. (Tokyo) **46**, 653-67

Cat.No.	Size	EUR
33635.01	250 mg	26,00
33635.02	1 g	67,00
33635.03	5 g	298,00

■ Proteinase K from *Tritirachium album* solution ≥ 20 mg/ml, ≥ 600 U/ml

EC 3.4.21.14 ♦ M, M, 28.000



DANGER

H334 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition: 1 mAnson Unit is defined as the amount of enzyme that liberates Folin-positive amino acids and peptides, corresponding to 1 µmol tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4)

Activity(U/ml): ≥ 600

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

- Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
- Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
- Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33755.01	1 ml	30,00
33755.02	5 ml	80,00
33755.03	10 ml	145,00

■ Proteinase K from *Tritirachium album* min. 8 DMC-U/mg lyophil.

EC 3.4.21.14 ♦ M, ca. 28 000 ♦ CAS [39450-01-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 254-457-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition 1 DMC-unit catalyzes the hydrolysis of 1 µmole dimethyl casein per minute at 25 °C, pH 7.0; the liberated amino groups are determined with 2,4,6-trinitrobenzene sulfonic acid (2).

Activities in other units ca. 30 milliAnson-units.

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

- Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
- Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
- Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33752.01	25 mg	27,00
33752.02	100 mg	62,00
33752.03	500 mg	182,00

■ Ribonuclease A from bovine pancreas min. 80 Kunitz units/mg lyophil.

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligonucleotidohydrolase)

EC 3.1.27.5 ♦ M, ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

An endonuclease which specifically attacks pyrimidine sites (Py/pN) at the 3'-phosphate group. This preparation is salt-free, protease-free and chromatographically homogeneous.

RNase A content: min. 90 % by ion exchange chromatography. DNase not detected.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0

References:

- Kunitz, M. (1946) J. Biol. Chem. **164**, 563-8
- Krupp, G. & Gross, H.J. (1979) Nucl. Acids Res. **6**, 3481-90
- Levy, C.C. & Kaepetzky, T.P. (1980) J. Biol. Chem. **255**, 2153-9
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.81)
- Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (3.13.1, 5.5.2, 4.7.3, 7.3.8)

Cat.No.	Size	EUR
34388.01	50 mg	35,00
34388.02	250 mg	125,00

■ Ribonuclease A from bovine pancreas min. 70 Kunitz units/mg lyophil.

EC 3.1.27.5 ♦ M, ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

RNase A content approx. 70 %.

DNase-free RNase: To prepare RNase A free of DNase dissolve RNase A in TE-buffer at 1 mg/ml and boil 10 to 30 minutes. Store aliquots at -20 °C to prevent microbial growth.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0.

Cat.No.	Size	EUR
34390.02	100 mg	23,00
34390.03	1 g	152,00

■ Salt Active Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C **

Supplied as solution in 25 mM Tris-HCl pH 7.5, 5 mM MgCl₂, 0.5 M NaCl, 0.01 % Triton X-100, 50 % (v/v) glycerol.

Salt Active Nuclease is a highly active non-specific endonuclease from a marine bacterium that cleaves both DNA and RNA. It digests DNA versus RNA in a 10:1 ratio.

Salt Active Nuclease has optimum activity at 0.5 M NaCl, is active in the pH range of 7 to 10 and low temperatures, which makes the enzyme ideal for use in removal of nucleic acids from cell extracts and proteins samples. It will remove contaminating nucleic acids in a traditional protein buffer system. That guarantees the full protection of proteins while the nucleic acids are fully removed.

- Non specific endonuclease
- Optimum activity at high salt concentration (0.5 M NaCl)
- Active at low temperatures (20 % at 6 °C)
- Broad pH range
- Temperature stable

Specific activity 400.000 Units/mg
pH optimum pH 9
Salt optimum 0.5 M NaCl

Unit definition: One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute at 37 °C, using 50 µg/ml calf thymus DNA in a buffer consisting of 25 mM Tris-HCl, pH 8.5 (25 °C), 5 mM MgCl₂, 500 mM NaCl.

Cat.No.	Size	EUR
18541.01	5.000 U	92,00
18541.02	25.000 U	390,00

Reagents

SERVA's molecular biology grade reagents are guaranteed DNase and RNase free. The ready-to-use buffer solutions save you time and labor and guarantee best results. Only high quality, application proved reagents are used. In addition we offer a comprehensive range of high quality reagents for making your own solutions according to your needs.

■ Agarose SERVA research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

Agarose with low EEO for analytical and preparative gel electrophoresis and blotting of DNA/RNA fragments > 500 bp.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size	EUR
11380.01	25 g	35,00
11380.02	100 g	99,00
11380.03	250 g	215,00
11380.05	500 g	390,00

■ Agarose SERVA Wide Range molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

For analytical and preparative electrophoresis and blotting of DNA/RNA fragments between 250 and 23,000 bp, PCR products, preparation of plasmids, screening and cleaning.
DNase/RNase-free.

Gelling temperature (1.5 %) 34 - 39 °C
Gel strength (1.5 %) min. 1200 g/cm²
Electro endosmosis (EEO) max. 0.13

Cat.No.	Size	EUR
11406.01	250 g	95,00
11406.02	500 g	170,00
11406.03	1 kg	325,00

■ Agarose SERVA low melting research grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative nucleic acid electrophoresis of DNA/RNA fragments >500 bp. Highly efficient recovery of DNA fragments at low temperature for subsequent in-gel manipulations like restriction analysis or ligation reactions.

Gelling temperature (1.5 %) max. 31 °C
Gel strength (1.5 %) > 200 g/cm²
Electro endosmosis (EEO) 0.05 - 0.14

Cat.No.	Size	EUR
11408.01	5 g	39,00
11408.02	25 g	145,00
11408.03	100 g	465,00

■ Agarose SERVA Premium molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative gel electrophoresis of DNA/RNA fragments > 500 bp,

recovery of DNA fragments for further modifications (restriction analysis, ligation reactions), blotting of nucleic acids. Special quality tested for applications in molecular biology.

Gelling temperature (1.5 %) 34 - 38 °C
Gel strength (1.5 %) > 1100 g/cm²
Electro endosmosis (EEO) 0.05 - 0.13

Cat.No.	Size	EUR
11381.01	25 g	45,00
11381.02	100 g	122,00
11381.03	250 g	265,00

■ Agarose SERVA Premium low melting molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For efficient separation of DNA/RNA fragments > 500 bp, best for in-gel enzymatic processing like restriction analysis, ligation reactions, PCR and others. Ideal for digestion by agarase enzymes, making it very easy to recover or to analyse large DNA fragments by cloning or other enzymatic applications. Special tested quality for applications in molecular biology.

Gelling temperature (1.5 %) 24 - 28 °C
Gel strength (1.5 %) > 500 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11382.01	25 g	165,00
11382.02	100 g	425,00
11382.03	250 g	950,00

■ Agarose SERVA for PCR molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp; special quality tested for applications in molecular biology. High gel strength for better handling and enhanced visibility due to improved clarity of the gel.

Gelling temperature (1.5 %) 28 - 34 °C
Gel strength (1.5 %) > 600 g/cm²
Electro endosmosis (EEO) ≤ 0.12

Cat.No.	Size	EUR
11383.01	25 g	95,00
11383.02	100 g	315,00
11383.03	250 g	670,00

■ Agarose SERVA for PCR low melting molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ WGK 1 ♦ HS 39139000

For analytical and preparative electrophoresis of PCR and DNA fragments > 40 bp and < 1000 bp. Special quality tested for applications in molecular biology. Best for fine resolution at agarose concentrations ranging from 1.8 % up to 4.5 %. Best for in-gel enzymatic processing. Ideal for digestion by agarase enzymes. Easy to recover small DNA fragments for subsequent analysis or for enzymatic modifications.

Gelling temperature (1.5 %) ca. 26 °C
Gel strength (1.5 %) > 200 g/cm²
Electro endosmosis (EEO) ≤ 0.10

Cat.No.	Size	EUR
11384.01	25 g	125,00
11384.02	100 g	425,00
11384.03	250 g	895,00

■ Agarose SERVA Tablets, 0.5 g/tablet molecular biology grade

CAS [9012-36-6]

EINECS 232-731-8 ♦ HS 39139000

Agarose pressed into tablets of 0.5 g each. For analytical and preparative electrophoresis of DNA fragments between 200 and 20,000 bp. Special quality tested for applications in molecular biology.

There is no need to weigh the agarose. Just simply disperse the requested number of tablets in running buffer for 5 minutes at room temperature and then heat the suspension in a microwave until the material is dissolved.

The achieved gel volume per tablet for different agarose concentrations is listed below:

% agarose	gel volume/tablet
0.5 %	100.0 ml
0.75 %	66.7 ml
1.0 %	50.0 ml
1.5 %	33.3 ml
2.0 %	25.0 ml
Gel. temp. (1.5 %)	34 - 39 °C
Gel strength (1.5 %)	> 1000 g/cm ²
Electro endosmosis (EEO)	≤ 0.13

Cat.No.	Size	EUR
11405.01	100 g	95,00
11405.02	500 g	395,00

■ Albumin bovine, DNase/RNase-free molecular biology grade

M_r ca. 67 000 ♦ CAS [9048-46-8]

HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin manufactured by a proprietary heat shock precipitation and ultrafiltration process. Especially suitable for use in hybridization and nucleic acid based assays.

Assay (CAF) > 97.0 %
pH (10 % in H₂O) 6.5 - 7.4
DNase/RNase not detected

Cat.No.	Size	EUR
11967.01	5 g	20,00
11967.02	25 g	56,00
11967.03	100 g	168,00

■ Albumin bovine cryst. lyophil.

(BSA; Bovine serum albumin)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

The purest form of our bovine albumins. Manufacturing includes a proprietary heat-shock fractionation process, ion exchange treatment and triple sequential crystallization, resulting in an extremely pure product. Best suited for use in highly sensitive systems requiring consistent protein background. Crystal form simplifies handling and weighing.

Assay (CAF) min. 99.0 %
pH (7 % in H₂O) 5.0 - 5.4
Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
11920.02	1 g	28,00
11920.05	5 g	100,00
11920.04	10 g	180,00
11920.06	50 g	651,00

■ Albumin bovine Fraction V, pH 7.0 Life Science grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin ideal for use in biotechnology, diagnostics, research and other life science applications.

First isolated by a proprietary heat shock/organic solvent process and further purified by non-solvent based methodologies to reduce IgG and endotoxins to very low levels.

Contains >90 % monomeric albumin that retains many of the binding, transfer and physical properties of native albumin.

Purity (CAF) ≥ 98.0 %
pH (1 % in 0.15 NaCl) 6.8 - 7.2
Moisture (Lod) ≤ 5.0 %
Heavy metals ≤ 20 ppm
IgG ≤ 50 µg/g
Mycoplasma none detected
Viral agents none detected

Cat.No.	Size	EUR
11946.01	25 g	77,00
11946.02	100 g	225,00

■ Ammonium acetate molecular biology grade

C₂H₇NO₂ ♦ M_r 77.08 ♦ CAS [631-61-8]

EINECS 211-162-9 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected. Suitable for nucleic acid precipitation.

Ammonium acetate can be used instead of sodium acetate for precipitation of nucleic acids. In general, for precipitation of DNA a 7.5 M stock solution and for RNA a 3 M stock solution are used.

Assay (titr.) min. 97.0 %

Cat.No.	Size	EUR
39750.01	500 g	33,00

■ Ammonium acetate solution, 7.5 M molecular biology grade

C₂H₇NO₂ ♦ CAS [631-61-8]

HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 7.5 M stock solution (ammonium acetate, cat. no. 39750: 578.1 g/l) for precipitation of DNA. Short oligonucleotides and free dNTPs do not coprecipitate with DNA when precipitated with NH₄OAc. Two consecutive precipitation steps are enough to remove 99 % of free dNTPs.

References:

- Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), S. 15.3.1-4.
- Saporito-Irwin, S.M. et al., (1997) BioTechniques, **23** p. 424-427

Cat.No.	Size	EUR
39751.01	250 ml	25,00
39751.02	1 L	65,00

Ammonium chloride molecular biology gradeNH₄Cl ♦ M_r 53.5 ♦ CAS [12125-02-9]**WARNING**

H302-H319 ♦ EG-Index 017-014-00-8 ♦ EINECS 235-186-4 ♦ WGK 1L ♦ HS 28271000

DNase/RNase not detected.

Assay (titr.)	min. 99.5 %
Heavy metals (Pb)	max. 0.0005 %
Iron (Fe)	max. 0.0002 %
Sulfate (SO ₄)	max. 0.002 %
Phosphate (PO ₄)	max. 0.0002 %

Cat.No.	Size	EUR
39752.01	500 g	39,00

Ammonium sulfate molecular biology grade(NH₄)₂SO₄ ♦ M_r 132.2 ♦ CAS [7783-20-2]

EINECS 231-984-1 ♦ WGK 1 ♦ HS 28332980

DNase/RNase not detected.

Assay (titr.)	min. 99.5 %

Cat.No.	Size	EUR
39753.01	250 g	19,00
39753.02	1 kg	39,00

(+)-Biotin cryst. research grade

(d-Biotin; Vitamin H)

C₁₀H₁₆N₂O₃S ♦ M_r 244.3 ♦ CAS [58-85-5]

EINECS 200-399-3 ♦ WGK 1L ♦ HS 29362900

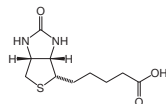
USP, Ph. Eur. Tested for use in tissue culture.

Assay (titr.)	98.5 - 100.5 %
Heavy metals	max. 10 ppm

References:

1. Knappe, J. (1970) Annu. Rev. Biochem. **39**, 757-76
2. Bayer, E. & Wilchek, M. (1974) Methods Enzymol. **34**, 265-7

Cat.No.	Size	EUR
15060.02	500 mg	27,00
15060.03	2,5 g	90,00

**5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt** research grade

(BCIP)

C₈H₆NO₄BrClP·C₇H₉N or C₁₅H₁₅BrClN₂O₄P ♦ M_r 433.6 ♦ CAS [6578-06-9]

EINECS 229-506-1 ♦ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

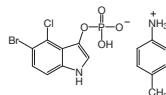
Stock solution: 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.**Staining solution for western blots:** 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

Assay (HPLC)	min. 99.0 %

References:

1. Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size	EUR
15247.02	100 mg	25,00
15247.03	500 mg	85,00

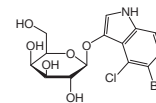
**5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal)** research grade

(X-Gal)

C₁₄H₁₅BrClNO₆ ♦ M_r 408.6 ♦ CAS [7240-90-6]

EINECS 230-640-8 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C



X-gal is a well known histochemical substrate used to detect the β-galactosidase enzyme (1, 2, 3, 4, 9, 10). Identification of lac^c-colonies (8). X-gal is used to distinguish recombinant plasmids from parental vectors in cloning experiments using vectors containing the lacZ or lacZ [DMvP1](-)peptide gene (2, 3, 5). Upon hydrolysis, X-gal yields a localized, insoluble blue precipitate making it exceptionally useful in blotting, immunocytochemical, and ELISA assays. X-gal has been used for the detection of coliforms (*E. coli*) in municipal water supplies (6) and food products (7). X-gal is often used in conjunction with IPTG (Isopropyl-β-D-thiogalactopyranoside, cat. no. 26600) which binds and inhibits the lac repressor thus inducing β-galactosidase activity.

Stock solution: 20 mg/ml in DMF. Store in aliquots at -20 °C in the dark. For detection of transformants, use in final concentration of 40 µg/ml.

Assay (HPLC)	min. 99.0 %

References:

1. Maloy, S.R. (1990) Experimental Techniques in Bacterial Genetics, Jones and Bartlett (eds.), Boston, MA
2. Miller, J.H. (1992) A Short Course in Bacterial Genetic, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
3. Sambrook, J. et al. (1989) Molecular Cloning: A laboratory Manual, 2nd. ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor (4.8, 4.22-4.23, 4.33, 4.37-4.38, 1.85-1.86, B.14)
4. Horowitz, J. et al. (1964) J. Med. Chem. **7**, 574
5. Brand, A. and Perrimon, N. (1993), Development **118**, 401
6. Ley, A. et al. (1993) Can. J. Microbio. **39**, 821
7. Feldsine, P.T. et al. (1993) J. AOAC Int. **76**, 5
8. Lojda, Z. et al. (1973) Histochemie **34**, 31-9
9. Lojda, Z. et al. (1979) in «Enzyme Histochemistry, A Laboratory Manual», Springer-Verlag Berlin, Heidelberg, New York
10. Davies et al. (1980) Advanced Bacterial Genetics, Cold Spring Harbor, N.Y.

Cat.No.	Size	EUR
15243.06	250 mg	27,00
15243.03	1 g	69,00
15243.07	5 g	235,00

n-Butanol analytical gradeC₄H₁₀O ♦ M_r 74.12 ♦ CAS [71-36-3]**DANGER**

H226-H302-H315-H318-H335-H336 ♦ EG-Index 603-004-00-6 ♦ GGVSE/ADR 3 III UN1120 ♦

IATA 3 III UN1120 ♦ EINECS 200-751-6 ♦ WGK 1 L

Assay (GC)	min. 99.0 %
Density (20 °C)	0.810
Water	max. 500 ppm
Acidity	max. 0.001 %
Residue on evaporation	max. 50 ppm

Cat.No.	Size	EUR
45628.01	1 L	25,00
45628.02	2,5 L	51,00

n-Butanol molecular biology grade

(1-Butanol)

C₄H₁₀O ♦ M_r 74.12 ♦ CAS [71-36-3]**DANGER**H226-H302-H315-H318-H335-H336 ♦ MAK/TRK 310 mg/m³; 100 ml/m³ ♦ EG-Index 603-004-00-6

♦ GGVSE/ADR 3 III UN1120 ♦ IATA 3 III UN1120 ♦ EINECS 200-751-6 ♦ WGK 1L ♦ HS 29051300

n-Butanol is used for the removal of ethidium bromide from DNA purified by CsCl gradient ultracentrifugation. It is also useful for the concentration of diluted nucleic acid solutions by repeated extractions.

Assay	min. 99.0 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.46, E16)
2. Ed. Ausubel et al., (2000) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), 7.6.5 Suppl.

Cat.No.	Size	EUR
39550.01	500 ml	32,00

Calcium chloride-2H₂O molecular biology grade

CaCl₂·2H₂O ♦ M_r 147.0 ♦ CAS [10035-04-8]



WARNING

H319 ♦ EG-Index 017-013-00-2 ♦ EINECS 233-140-8 ♦ WGK 1L ♦ HS 28272000

DNase/RNase not detected. Useful in preparing competent bacteria.

Assay (titr.)	min. 99.0 %
Sulfate	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %
pH 5 % in water	4.5 - 9.2

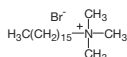
References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.82-1.84)

Cat.No.	Size	EUR
39551.01	250 g	26,00

Cetyltrimethylammonium-bromide cryst. pure

(CTAB; Cetrime C16; Cetrimonium bromide; Hexadecyltrimethyl ammonium-bromide; Palmityltrimethyl-ammonium-bromide)



C₁₉H₄₂NBr ♦ M_r 364.46 ♦ CAS [57-09-0]



WARNING

H302-H315-H319-H400-H410 ♦ GGVSE/ADR 9 III UN3077

♦ IATA 9 III UN3077 ♦ EINECS 200-311-3 ♦ WGK 3L ♦ HS 29239000

Cationic surfactant used instead of SDS in electrophoresis of highly charged and membrane protein subunits (1). Surfactant for modifying silica for HPLC (2). Suitable for cell permeabilization (3) and DNA isolation (4). Increases the efficiency of chemiluminescence (5, 6).

Assay (titr.) min. 99.0 %

References:

1. Eley, M. et al. (1979) Anal. Biochem. **92**, 411-9
2. Hansen, S.H. et al. (1981) J. Chromatogr. **210**, 453-60
3. Joshi, M.S. et al. (1989) Biotechnol. Lett. **11**, 349-52
4. Milligan, B.G. (1989) Plant Mol. Biol. Rep. **7**, 144-9
5. Abdel-Latif, M.S. & Guibault, G.G. (1989) Anal. Chim. Acta **221**, 11-7
6. Aiken, J.H. & Huie, C.W. (1991) Anal. Lett. **24**, 167-80

Cat.No.	Size	EUR
16530.04	100 g	18,00
16530.02	500 g	56,00

Chloroform molecular biology grade

CHCl₃ ♦ M_r 119.4 ♦ CAS [67-66-3]



WARNING

H302-H315-H351-H373 ♦ Carc. 2 ♦ MAK/TRK 2.5 mg/m³; 0.5 ml/m³ ♦ EG-Index 602-006-00-4 ♦ GGVSE/

ADR 6.1 III UN1888 ♦ IATA 6.1 III UN1888 ♦ EINECS 200-663-8 ♦ WGK 3L ♦ HS 29031300

Suitable for nucleic acid purification and for removal of traces of phenol from aqueous DNA and RNA samples.

Assay (GC)	99.9 - 100.0 %
Density (20 °C)	1.478 - 1.482
Water	max. 0.05 %
Acidity	< 0.001 %
Residue on evaporation (w/w %)	< 0.0005 %

Cat.No.	Size	EUR
39553.01	250 ml	23,00
39553.02	2,5 L	99,00

Chloroform:isoamyl alcohol 24:1 molecular biology grade



WARNING

H302-H315-H335-H351-H373 ♦ GGVSE/ ADR 6.1 III UN2810 ♦ IATA 6.1 III UN2810 ♦ WGK 3 ♦

HS 38220000

DNase, RNase, Proteases not detected. Mixture of chloroform and isoamyl alcohol (ratio 24:1). Bottled under inert gas. Suitable for nucleic acid purification. Improves efficiency of nucleic acid extraction.

Assay

Chloroform (cat. no. 39553)	min. 99.9 %
Isoamyl alcohol (cat. no. 39557)	min. 99.0 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.3-E.4)

Cat.No.	Size	EUR
39554.02	500 ml	27,00

Denhardt's solution, 50x concentrate molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

DNase/RNase not detected. 0.2 µm filtered.

Suitable for nucleic acid hybridization. Denhardt's solution is a mixture of blocking agents capable of saturating non-specific binding sites and to be used in membrane-based hybridization protocols. It is recommended for use with nylon membranes.

Composition:

Albumin Fraction V	0.1 g/10 ml
Polyvinylpyrrolidone	0.1 g/10 ml
Ficoll® 400	0.1 g/10 ml

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (9.48-50, B.15)
2. Denhardt, D.T., (1966) Biochem. Biophys. Res. Commun. **23**(5), 641-646

Cat.No.	Size	EUR
39603.01	10 ml	36,50
39603.02	5 x 10 ml	95,00

Dextran sulfate 500-Na-salt stabilized (0.5 -2 % phosphate)

M_r ca. 500 000 ♦ CAS [9011-18-1]

EINECS 232-677-5 ♦ HS 39139000

Contains 0.5 - 2 % phosphate for stabilization. Special quality for the precipitation of lipoproteins (1, 2). Ribonuclease inhibitor (3). For reinforcing plaque formation by EMC virus (4). For accelerating DNA hybridization (5).

References:

1. Dangerfield, W.G. & Faulkner, G. (1964) Chim. Acta **10**, 123-33
2. Wieland, H. & Seidel, D. (1973) Clin. Chem. **19**, 1139-41
3. Ascione, R. & Arlinghaus, R.B. (1970) Biochim. Biophys. Acta **204**, 478-88
4. Takemoto, K.K. & Liebhafner, H. (1962) Virology **17**, 499-501
5. Wahl, G.M. et al. (1979) Proc. Natl. Acad. Sci. USA **76**, 3683-7

Cat.No.	Size	EUR
18706.01	25 g	48,00
18706.02	50 g	85,00
18706.03	100 g	153,00

Diethyl pyrocarbonate research grade

(DEPC; Ethoxy formic anhydride; Pyrocarbonic acid diethyl ester)

C₆H₁₀O₅ ♦ M_r 162.14 ♦ CAS [1609-47-8]



WARNING

H302-H315-H332-H335 ♦ EINECS 216-542-8 ♦ WGK 1 ♦ HS 29209085

Storage temperature +2 °C to +8 °C

Crosslinks proteins, reacts with histidine residues (1). RNase inhibitor (2). Sterilization of instruments: 20-minute treatment with a dilution of 1 ml/l (3). Removal of RNases from solutions (except those containing amines like Tris): Add DEPC to final conc. of 0.1 %, stir overnight and autoclave.

Assay (GC) min. 96.0 %

References:

1. Tsurushiin, S. et al. (1975) Biochim. Biophys. Acta **410**, 451-60
2. Berger, S.L. (1975) Anal. Biochem. **67**, 428-37
3. Pauli, O. & Genth, H. (1966) Z. Lebensm.-Unters.-Forsch. **132**, 216-27

Cat.No.	Size	EUR
18835.01	10 ml	35,00
18835.02	100 ml	230,00

Dimethyl sulfoxide molecular biology grade

(DMSO)

C₂H₆OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160 mg/m³ ♦ EINECS 200-664-3 ♦ WGK 1 ♦ HS 29309099

DNase/RNase not detected.

Assay	min. 99.0 %
MP	18.0 °C
d ₂₀ °C	1.1
Water (KF)	max. 0.3 %

Cat.No.	Size	EUR
39757.01	50 ml	18,00
39757.02	250 ml	25,00

■ Dimethylformamide molecular biology grade

(DMF; DMFA)

 C_3H_7NO ♦ M_r 73.10 ♦ CAS [68-12-2]

DANGER

H226-H312-H319-H332-H360D ♦ Repr. 1B
♦ MAK/TRK 10 ml/m³, 30 mg/m³ ♦ EG-Index 616-001-00-X ♦ GGVSE/ADR 3 III UN2265 ♦ IATA 3 III UN2265 ♦
EINECS 200-679-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected. Suitable as a solvent for chromogenic substrates used in molecular biology applications.

Assay (GC) min. 99.9 %

Cat.No.	Size	EUR
39756.01	250 ml	21,50
39756.02	1 L	56,50

■ Dithioerythritol molecular biology grade

(DTE; Cleland's reagent; erythro-1,4-Dimercapto-2,3-butanediol)

 $C_4H_{10}O_2S_2$ ♦ M_r 154.24 ♦ CAS [6892-68-8]

WARNING

H302-H312-H315-H319-H332-H335 ♦ EINECS 229-998-8 ♦
WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected. Quantitatively reduces disulfide groups, forming a cyclic disulfide (1, 2, 3).

Assay (titr.) min. 99.0 %

MP 82 - 86 °C

A 1 cm/0.02 M in H₂O

283 nm max. 0.04

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2
2. Zahler, W.L. & Cleland, W.W. (1968) J. Biol. Chem. **243**, 716-9
3. Burstein, Y. & Patchornik, A. (1972) Biochemistry **11**, 2939-44

Cat.No.	Size	EUR
39758.01	1 g	30,00
39758.02	5 g	63,00
39758.03	25 g	250,00

■ Dithiothreitol molecular biology grade

(DTT; Cleland's reagent; threo-1,4-Dimercapto-2,3-butanediol)

 $C_4H_{10}O_2S_2$ ♦ M_r 154.25

WARNING

H302-H315-H319-H332-H335 ♦ WGK 1 ♦ HS 29309099
Storage temperature +2 °C to +8 °C

DNase/RNase not detected. For quantitative reduction of disulfide groups (1). Oxidized DTT max. 0.5 %. Hygroscopic.

Assay (titr.) min. 99.0 %

MP 40 - 45 °C

References:

1. Cleland, W.W. (1964) Biochemistry **3**, 480-2

Cat.No.	Size	EUR
39759.01	1 g	21,00
39759.02	5 g	53,00
39759.03	25 g	175,00

■ DNA from fish sperm pure

CAS [100403-24-5]

EINECS 309-566-6 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Defatted; this material is largely depolymerized; suitable as source for various mono- and oligonucleotides. May be used as blocking reagent after solubilization, shearing and heat denaturation (3).

References:

1. Zamenhoff, S. (1958) Biochem. Prep. **6**, 6-12
2. Bonner, J. & Huang, R.C.C. (1963) J. Mol. Biol. **6**, 169-74
3. J. Sambrook, E.F. Fritsch, T. Maniatis (1989) Molecular Cloning - A Laboratory Manual, B15

Cat.No.	Size	EUR
18580.01	25 g	41,00
18580.02	100 g	132,00

■ Dodecylsulfate-Na-salt 2x cryst., molecular biology grade

(SDS; Sodium laurylsulfate)

 $C_{12}H_{25}O_4S-Na$ ♦ M_r 288.38 ♦ CAS [151-21-3]

WARNING

H228-H302-H311-H315-H319-H335 ♦ GGVSE/
ADR 4.1 III UN2926 ♦ IATA 4.1 III UN2926 ♦

EINECS 205-788-1 ♦ WGK 2L ♦ HS 34029090

DNase/RNase not detected. Useful for protein solubilization, plasmid extraction from bacteria, and to reduce non-specific binding sites on membranes during nucleic acid hybridization.

Assay (GC) min. 99.5 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.05

Cat.No.	Size	EUR
39574.01	100 g	37,00
39574.02	500 g	136,00

■ Ethanol denaturated 96 %

 C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]

DANGER

H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
EINECS 200-578-6 ♦ WGK 2L ♦ HS 22072000

Assay (GC) min. 96.0 %

Methyl ethyl ketone 1 %

Aldehyde max. 30 ppm

Acidity max. 10 ppm

Methanol max. 1000 ppm

Residue on evaporation max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

■ Ethanol undenaturated 96 % analytical grade

 C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]

DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

Assay (GC) 94.0 - 96.0 %

Water (KF) 4.0 - 6.0 %

Cat.No.	Size	EUR
11094.01	1 L	61,00
11094.02	2,5 L	135,00

■ Ethanol undenaturated absolute molecular biology grade

 C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]

DANGER

H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
♦ WGK 1L ♦ HS 22071000

DNase/RNase not detected. Suitable for use in the precipitation of nucleic acids.

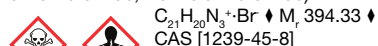
Assay (GC) min. 99.7 %

Water (KF) max. 0.2 %

Cat.No.	Size	EUR
39556.01	250 ml	28,00
39556.02	1 L	69,00
39556.03	2,5 L	145,00

Ethidium bromide research grade

(1,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; 3,8-Diamino-5-ethyl-6-phenyl-phenanthridiniumbromide; Homidium bromide)



DANGER

H302-H330-H341 ♦ EG-Index 612-278-00-6 ♦ GGVSE/
ADR 6.1 I UN2811 ♦ IATA 6.1 I UN2811 ♦ EINECS 214-984-6 ♦ WGK 2 ♦
HS 29339980

Suitable for use in staining of DNA after electrophoresis. Also used as counterstain for cell nuclei in histological and cytological analysis.

Caution:

Ethidium bromide is a powerful mutagen and moderately toxic. Gloves should be worn when working with solutions that contain this dye. For decontamination of dilute ethidium bromide containing solutions follow the method from Lunn and Samsone (1). The adsorbent SERDOLIT™ PAD-I for this procedure is available under cat. no. 42442.

Assay (titr.) min. 98.0 %

References:

1. Lunn & Samsone (1987) Ethidium bromide: Destruction and decontamination of solutions. Anal. Biochem. **162**, 453

Cat.No.	Size	EUR
21238.01	1 g	18,00
21238.02	5 g	64,00

Ethidium bromide aqueous solution 1 % w/v



DANGER

H330-H341 ♦ GGVSE/
ADR 6.1 III UN2810 ♦

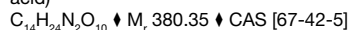
IATA 6.1 III UN2810 ♦ WGK 2 ♦ HS 38220000
Storage temperature +2 °C to +8 °C

Concentration: 10 mg/ml. Suitable for use in staining of DNA after electrophoresis or as counterstain of cell nuclei in histology and cytology.

Cat.No.	Size	EUR
21251.01	25 ml	29,00

Ethylene glycol bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid molecular biology grade

(EGTA; Chel-De; Egtazic acid; Ethylene-bis(oxyethylene-nitrilo)-tetraacetic acid)



EINECS 200-651-2 ♦ HS 29225000

DNase/RNase not detected. High selectivity for Ca²⁺ over Mg²⁺.

Assay (titr.) min. 99.0 %

References:

1. Berman, C. (1982) J. Biol. Chem. **257**, 1953-7

Cat.No.	Size	EUR
39762.01	5 g	19,00
39762.02	50 g	105,00

Ethylenediamine tetraacetic acid-Na₂-salt molecular biology grade

(Versene disodium; EDTA-disodium)

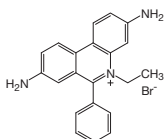
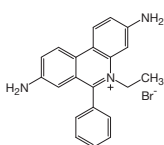


EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
39760.01	250 g	27,00



Ethylenediamine tetraacetic acid-Na₂-salt solution, 0.5 M molecular biology grade

WGK 2 ♦ HS 38220000

DNase/RNase not detected. pH (20 °C): 8.0 ± 0.1, 0.5 M solution. Ready-to-use EDTA disodium salt solution, which can be readily diluted into any buffer of choice. Suitable for electrophoresis buffers, protein purification etc.

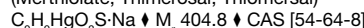
Composition:

EDTA-Na₂·2H₂O (cat.no. 39760) 186.1 g/l
pH 8.0 ± 0.1

Cat.No.	Size	EUR
39761.01	100 ml	19,00
39761.02	500 ml	33,00

Ethylmercury thiosalicylic acid-Na-salt research grade

(Merthiolate; Thimerosal; Thiomersal)



DANGER

H301-H310-H330-H373-H410

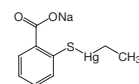
♦ MAK/TRK 0.01 ml/m³, 0.1 mg/m³ calculated

as mercury ♦ EG-Index 080-004-00-7 ♦ GGVSE/ADR 6.1 III UN2025 ♦
IATA 6.1 III UN2025 ♦ EINECS 200-210-4 ♦ WGK 3L ♦ HS 28521000

USP, Ph. Eur.

Assay (titr.) 97.0 - 101.0 %

Cat.No.	Size	EUR
11340.01	10 g	42,00
11340.02	25 g	88,00
11340.03	100 g	252,00



FICOLL™ 400 molecular biology grade

M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

DNase/RNase not detected. Suitable for use in hybridization buffers like Denhardt's Solution (cat. no. 39603).

FICOLL = trademark of GE Healthcare companies.

Cat.No.	Size	EUR
39763.01	10 g	47,00
39763.02	50 g	135,00

γ-Globulin bovine

M_r 150000 ♦ CAS [9007-83-4]

EINECS 232-706-1 ♦ WGK 1 ♦ HS 30021091

Storage temperature +2 °C to +8 °C

Cohn-Fraction II. Highly purified. Soluble in saline and standard buffers. Suitable to reduce non-specific adsorption of antibody in immunoassay systems. Starting material for the isolation of IgG subclasses.

Assay (CAF) 96.0 - 100.0 %

pH (7 % solution) 6.8 - 7.2

Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
22550.01	5 g	65,00
22550.02	25 g	235,00

Glycogen from oyster, solution 20 mg/ml molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C

DNase/RNase not detected. 20 mg/ml solution in redistilled water. Suitable as a carrier molecule for DNA and RNA, replacing tRNA and sonicated DNA.

References:

1. Sambrook, J. & Russell, D.W. (2001) Molecular Cloning, 3rd Edition, Cold Spring Harbor Laboratory Press (p 5.20)

Cat.No.	Size	EUR
39766.01	1 ml	52,00
39766.02	10 x 1 ml	245,00

Guanidine-HCl molecular biology gradeCH₅N₃·HCl ♦ M_r 95.5 ♦ CAS [50-01-1]

WARNING
H302-H315-H319 ♦ EG-Index 607-148-00-0 ♦ EINECS 200-002-3 ♦
WGK 1L ♦ HS 29252900

DNase/RNase not detected.

Assay min. 99.5 %
A 1 cm/10 % in water
260 nm max. 0.03
280 nm max. 0.015
Heavy metals max. 10 ppm

Cat.No.	Size	EUR
39558.01	100 g	27,00
39558.02	500 g	98,00

Guanidine-thiocyanate molecular biology gradeCH₃N₃·HSCN ♦ M_r 118.2 ♦ CAS [593-84-0]

WARNING
H302-H312-H332-H412 ♦ EG-Index 615-004-00-03 ♦
EINECS 209-812-1 ♦ WGK 2L ♦ HS 29252900

DNase/RNase not detected. Suitable for the isolation of RNA.

Assay > 99.0 %
MP 115 - 122 °C
A 1 cm/3 M in water
280 nm < 0.4
300 nm < 0.05
Heavy Metals (as Pb) < 5 ppm
Iron (Fe) < 5 ppm

Cat.No.	Size	EUR
39577.01	250 g	51,00
39577.02	500 g	89,00

Isoamyl alcohol molecular biology grade

(3-Methyl-1-butanol; Isopentylalcohol)

C₅H₁₂O ♦ M_r 88.15 ♦ CAS [123-51-3]

WARNING
H226-H332-H335 ♦ MAK/TRK 370 mg/m³; 100 ml/m³ ♦
EG-Index 603-006-00-7 ♦ GGVSE/ADR 3 III UN1105 ♦
IATA 3 III UN1105 ♦ EINECS 204-633-5 ♦ WGK 1L ♦ HS 29051490

DNase, RNase, Proteases not detected. Suitable for use in nucleic acid purification. Isoamyl alcohol prevents foaming during nucleic acid extraction with Phenol:Chloroform:Isoamyl alcohol.

Assay (total isomers, GC) min. 99.0 %
Acidity (as CH₃COOH) max. 0.003 %
Water (KF) max. 0.5 %
Residue on evaporation max. 0.002 %
Heavy metals (as Pb) max. 0.00001 %
Zinc max. 0.00001 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (E.3-E.4)

Cat.No.	Size	EUR
39557.01	250 ml	25,00
39557.02	1 L	54,00

Isopropanol molecular biology grade

(2-Propanol)

C₃H₈O ♦ M_r 60.09 ♦ CAS [67-63-0]

DANGER
H225-H319-H336 ♦ MAK/TRK 500 mg/m³; 200 ml/m³ ♦
EG-Index 603-117-00-0 ♦ GGVSE/ADR 3 II UN1219 ♦
IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦ WGK 1L ♦ HS 29051200

Suitable for the precipitation of nucleic acids. When compared to ethanol 50 % less is required for nucleic acid precipitation.

Purity (GC) min. 99.7 %
Water max. 0.1 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning,
2. Cold Spring Harbor Laboratory Press (E.13-E.14)

Cat.No.	Size	EUR
39559.01	250 ml	19,00
39559.02	1 L	35,00

Isopropanol analytical grade

(2-Propanol)

C₃H₈O ♦ M_r 60.1 ♦ CAS [67-63-0]

DANGER
H225-H319-H336 ♦ EG-Index 603-117-00-0 ♦ GGVSE/
ADR 3 II UN1219 ♦ IATA 3 II UN1219 ♦ EINECS 200-661-7 ♦ WGK 1 L ♦
HS 29051200

Assay (GC) min. 99.7 %
Density (20 °C) 0.785
Water max. 1000 ppm
Acidity max. 0.001 %
Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45629.01	1 L	19,00
45629.02	2,5 L	38,00

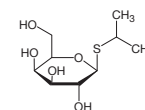
Isopropyl-β-D-thiogalactopyranoside research grade

(IPTG; Isopropyl-1-thio-β-D-galactopyranoside)

C₉H₁₈O₅S ♦ M_r 238.3 ♦ CAS [367-93-1]

EINECS 206-703-0 ♦ WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C



Analog of galactose, not split by β-galactosidase.

Inducer of the lac operon in bacteria. Used in conjunction with X-Gal (5-bromo-4-chloro-indolyl-β-D-galactoside, cat. no. 15243) for detection of lac⁺ colonies. Dissolve in H₂O to 200 mg/ml, sterilize by filtration and store in aliquots at -20 °C. For detection of transformants, use in final concentration of 0.1 mM.

Assay (HPLC) 98.0 - 101.0 %
[α] 20 °C/D (c=1 in water) -28.5 ° to -34.5 °
1,4-Dioxane not detected

References:

1. Donner, J. et al. (1982) J. Biol. Chem. **257**, 14826-9
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (4.33, 4.37-4.38, 1.8-1.9, 17.12-17.13, B.11)
3. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (1.4.3, 16.2.3, 1.15.1)

Cat.No.	Size	EUR
26600.03	1 g	21,00
26600.04	10 g	95,00
26600.06	50 g	325,00

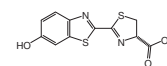
D-Luciferin cryst. research grade

(4,5-Dihydro-2-[6-hydroxy-2-benzothiazolyl]-4-thiazolecarboxylic acid)

C₁₁H₈N₂O₃S₂ ♦ M_r 280.3 ♦ CAS [2591-17-5]

EINECS 219-981-3 ♦ HS 29342080

Storage temperature -15 °C to -25 °C



Synthetic. Addition of luciferin to the luciferin-luciferase system increases ATP detection limit 1000 fold. Suitable for luciferase assay and ATP measurement. For luciferase assay prepare stock solution of 1 mM D-Luciferin, 25 mM glycylglycine, 10 mM DTT (cat. no. 20710), store aliquots at -70 °C.

References:

1. Karl, D. & Holm, O. (1976) Anal. Biochem. **75**, 100-12

Cat.No.	Size	EUR
28073.02	10 mg	39,00
28073.03	50 mg	145,00

Magnesium chloride-6H₂O molecular biology gradeMgCl₂·6H₂O ♦ M_r 203.3 ♦ CAS [7791-18-6]

HS 28273100

DNase/RNase not detected.

Assay (titr., hydrate) 98.0 - 101.0 %
Heavy metals (Pb) max. 0.001 %

Cat.No.	Size	EUR
39771.01	500 g	29,50

■ **Magnesium chloride, solution 1 M** molecular biology grade

HS 38220000

DNase/RNase not detected.

Composition: $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ (cat. no. 39771) 203.30 g/l

Cat.No.	Size	EUR
39772.01	100 ml	17,00
39772.02	500 ml	29,50

■ **Magnesium sulfate heptahydrate** molecular biology grade $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ ♦ M_r 246.48 ♦ CAS [10034-99-8]

EG-Index 231-298-2 ♦ WGK 1 ♦ HS 28332100

DNase/RNase not detected.

Assay (titr.) min. 99.5 %
 Heavy metals (as Pb): max. 0.001 %
 Chloride (Cl) max. 0.0005 %

Cat.No.	Size	EUR
39773.01	100 g	18,00
39773.02	500 g	45,00

■ **2-Mercaptoethanol** molecular biology grade

(Monothioethylene glycol)

 $\text{C}_2\text{H}_6\text{OS}$ ♦ M_r 78.13 ♦ CAS [60-24-2]

DANGER

H301-H310-H315-H317-H318-H331-H373-H410 ♦ GGVSE/ADR 6.1 II UN2966 ♦

IATA 6.1 II UN2966 ♦ EINECS 200-464-6 ♦ WGK 3L ♦ HS 29309099

Storage temperature +2 °C to +8 °C

DNase/RNase not detected.

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
39563.01	50 ml	17,00
39563.02	500 ml	53,00

■ **Mineral oil** molecular biology grade

(Paraffin oil, low viscosity)

CAS [8042-47-5]

EINECS 232-455-8 ♦ WGK 1L ♦ HS 27101985

DNase/RNase not detected. Suitable for overlaying aqueous reactions and centrifuge gradients.

Cat.No.	Size	EUR
39776.01	50 ml	19,50

■ **Morpholinopropane sulfonic acid** molecular biology grade

(MOPS)

 $\text{C}_7\text{H}_{15}\text{NO}_4\text{S}$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

DNase/RNase not detected. pK_a 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %
 A 1 cm/10 % in Wasser
 260 nm max. 0.1
 280 nm max. 0.08

References:1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
39777.01	100 g	39,00

■ **Nitro Blue tetrazolium chloride** analytical grade

(NBT; Nitro BT; Nitrotetrazolium Blue chloride; Ditetrazolium dye)

 $\text{C}_{40}\text{H}_{30}\text{Cl}_2\text{N}_{10}\text{O}_6$ ♦ M_r 817.7 ♦ CAS [298-83-9]

WARNING

H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦

HS 29339980

Storage temperature +2 °C to +8 °C

A ditetrazolium compound for demonstrating succinic dehydrogenase activity (1). Glucose-6-phosphate dehydrogenase (2). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

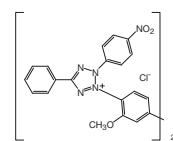
Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.**Staining solution for western blots:** 66 µl NBT stock solution and 33 µl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl_2 , 100 mM Tris; pH 9.5)

Purity

min. 98.0 %

References:

1. Nachlas, M.M. et al. (1957) J. Histochem. Cytochem. **5**, 420-36
 2. Negi, D.S. & Stephens, R.J. (1977) J. Histochem. Cytochem. **25**, 149-54
 3. Auscher, C. & Amory, N. (1976) Biomedicine **5**, 37-8



Cat.No.	Size	EUR
30550.01	250 mg	23,00
30550.02	1 g	64,00
30550.03	5 g	263,00

■ **dNTP PCR Mix, solution 10 mM** molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

Ready to use dNTP mixture for the Tth DNA polymerase and Taq DNA polymerase.

Mixture of dATP, dCTP, dGTP, dTTP, 10 mM of each, free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc. Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions.

Every lot is tested in a 30 kb PCR and real-time PCR reaction.

Purity

> 98.0 %

pH

8.5 ± 0.1

Cat.No.	Size	EUR
39712.01	0,2 ml	39,00
39712.02	5 x 0,2 ml	125,00

■ **dNTPs Set, solution 100 mM** molecular biology grade

HS 38220000

Storage temperature -15 °C to -25 °C **

Set of 100 mM solutions of each dATP, dCTP, dGTP, dTTP.

Free of DNase, RNase, Phosphatase and Protease. Absolutely free of substances that may inhibit PCR, e.g. pyrophosphates etc.

Ultrapure dNTPs qualified for use in standard and long PCR, RT-PCR, manual and automated sequencing, cDNA synthesis, DNA footprinting and labelling reactions. Every lot is tested in a 30 kb PCR and real-time PCR reaction.

0.25 ml correspond to 25 µmol.

Purity

> 98.0 %

pH

8.5 ± 0.1

Cat.No.	Size	EUR
39705.01	4 x 250 µl	125,00
39705.02	4 x 1 ml	365,00

■ **Phenol** analytical grade

(Hydroxybenzene)

 $\text{C}_6\text{H}_6\text{O}$ ♦ M_r 94.11 ♦ CAS [108-95-2]

DANGER

H301-H311-H314-H331-H341-H373 ♦ Muta. 2 ♦ MAK/TRK 7.8 mg/m³; 2 ml/m³ ♦ EG-

Index 604-001-00-2 ♦ GGVSE/ADR 6.1 II UN1671 ♦ IATA 6.1 II UN1671 ♦ EINECS 203-632-7 ♦ WGK 2L ♦ HS 29071100

USP, Ph.Eur. For separation of proteins during purification of nucleic acids.

Assay (titr.)

99.0 - 100.5 %



Cat.No.	Size	EUR
32046.02	500 g	45,00

Piperazine-N,N'-bis(2-ethane sulfonic acid)

molecular biology grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

$C_8H_{18}N_2O_6S_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

EINECS 227-057-6 ♦ HS 29335995

DNase/RNase not detected. Buffering substance pK_a 20 = 6.8.

Assay (titr.) min. 99.0 %
Heavy metals (Pb) max. 0.0005 %

Cat.No.	Size	EUR
39779.01	100 g	64,00

Polyethylene glycol 6000 molecular biology grade

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

Degree of polymerization ca. 140 - 170.

DNase/RNase not detected. Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Mean mol mass 5400 - 6600
Heavy metals (as Pb) max. 5 ppm

Cat.No.	Size	EUR
39778.01	500 g	24,50

Polyvinylpyrrolidone 90 molecular biology grade

CAS [9003-39-8]

WGK 1 ♦ HS 39059990

DNase/RNase not detected. Suitable for preparation of Denhardt's Solution for Southern and Northern Blots.

Intrinsic viscosity (K-value) 88.0 - 96.0

Cat.No.	Size	EUR
39609.01	100 g	25,00
39609.02	500 g	59,00

Potassium acetate molecular biology grade

$C_2H_3O_2K$ ♦ M_r 98.14 ♦ CAS [127-08-2]

EINECS 204-822-2 ♦ WGK 1L ♦ HS 29152900

DNase/RNase not detected.

Assay (titr.) min 99.0 %
Heavy metals (as Pb) max. 0.001 %
pH 5 % in water 7.5 - 9.0

Cat.No.	Size	EUR
39567.01	100 g	20,00
39567.02	500 g	60,00

Potassium chloride molecular biology grade

KCl ♦ M_r 74.6 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

DNase/RNase not detected.

Assay (titr.) min. 99.0 %
Heavy metals (as Pb) max. 10 ppm
Fe max. 20 ppm

Cat.No.	Size	EUR
39768.01	500 g	24,50
39768.02	1 kg	29,50

di-Potassium hydrogen phosphate molecular biology grade

(sec. Potassium phosphate; Potassium phosphate dibasic)

K_2HPO_4 ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

DNase/RNase not detected

Assay (titr.) min. 99.0 %
pH 5 % in water 8.7 - 9.4
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
39767.01	250 g	45,00

SDS Solution, 20 % molecular biology grade



WARNING

H315-H319-H335 ♦ WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered

Composition:

SDS (cat. no. 39574): 200 g/L

Cat.No.	Size	EUR
39575.01	100 ml	30,00
39575.02	1 L	79,00

SERDOLIT® MB molecular biology grade

HS 39140000

DNase/RNase not detected. Mixed-bed ion exchanger with exhaustion indicator composed of SERDOLIT® Blue (OH⁻-form) and SERDOLIT® CS-2 (H⁺-form) in a ratio at approx. 1.5:1 (v/v); ready-to-use, suitable for demineralizing water, deionising formamide, acrylamide, glyoxal, PEG and urea.

Capacity min. 0.8 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 50 - 65 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (p. 1.102)

Cat.No.	Size	EUR
39608.01	500 g	149,00

SERVA DNA Stain G



WARNING

H315-H319 ♦ HS 38220000

SERVA DNA Stain G is a safer alternative to traditional ethidium bromide stain for detecting nucleic acid in agarose gels. It is at least as sensitive as ethidium bromide and can be used in exactly the same way in agarose gel electrophoresis. SERVA DNA Stain G can be added to the gel solution, working dilution is 1:20.000 to 1:50.000.

SERVA DNA Stain G emits green fluorescence when bound to DNA or RNA. It has one fluorescence excitation maximum at ca. 300 nm and another at ca. 450 nm when bound to nucleic acid.

SERVA DNA Stain G is non-carcinogenic and according to the AMES test it causes significantly fewer mutations than ethidium bromide.

Cat.No.	Size	EUR
39803.01	1 ml	55,00
39803.02	5 x 1 ml	245,00

SERVA DNA Stain Clear G



WARNING

H315-H319 ♦ HS 38220000

SERVA DNA Stain Clear G is a new, non-carcinogenic, much more sensitive and convenient version of our SERVA DNA Stain G. It can be used instead of highly carcinogenic ethidium bromide for detecting nucleic acid in agarose gels.

SERVA DNA Stain Clear G emits green fluorescence when bound to DNA or RNA. It has two secondary fluorescence excitation peaks (ca. 270 nm and 295 nm) and one strong excitation peak centered around 490 nm. The fluorescence emission is similar to EtBr at ca. 530 nm when bound to nucleic acid.

Pre-casting and post-staining protocols are applicable.

1 ml of this stain is sufficient for 17 - 25 L of agarose gel.

Cat.No.	Size	EUR
39804.01	1 ml	82,00
39804.02	5 x 1 ml	360,00

■ **Skim Milk Powder** for blotting

CAS [68514-61-4]

HS 04021011

Skim milk powder is used as a blocking reagent in immunological assays like Western Blotting or ELISA. It is as well suitable for blocking of nitrocellulose filters in cDNA cloning.

It is not suitable for biotin/streptavidin detection systems, because milk contains biotin.

Protein	32.0 - 35.0 %
Fat max.	1.25 %
Lactose	51.0 - 56.0 %
pH (10 % in water)	6.5 - 6.7
Ash	7.2 - 8.2
Water max.	4.0 %

References:

1. Johnson, D. A. et al. (1987) Gene Anal. Techn. **1**, 3 - 8
2. Harlow, E. & Lane, D. (1988) Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
42590.01	500 g	16,00
42590.02	1 kg	26,00
42590.03	5 kg	94,00

■ **Sodium acetate** molecular biology grade

(Acetic acid-Na-salt)

 $\text{C}_2\text{H}_3\text{O}_2\cdot\text{Na}$ ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1 ♦ HS 29152900

DNase/RNase not detected. pKa 25 = 4.76.

Assay (titr.)	min. 98.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
39571.01	500 g	38,50

■ **Sodium acetate buffer pH 5.2, solution 3M**

molecular biology grade

(Acetic acid-Na-salt)

 $\text{C}_2\text{H}_3\text{O}_2\cdot\text{Na}$ ♦ M_r 82.0 ♦ CAS [127-09-3]

HS 38220000

DNase/RNase not detected.

Composition: $\text{C}_2\text{H}_3\text{O}_2\cdot\text{Na}$ (cat. no. 39571) 246.0 g/l

Cat.No.	Size	EUR
39572.01	250 ml	18,50
39572.02	1 L	52,00

■ **Sodium bicarbonate** molecular biology grade NaHCO_3 ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1L ♦ HS 28363000

DNase/RNase not detected.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size	EUR
39780.01	250 g	24,50
39780.02	1 kg	79,00

■ **Sodium chloride** molecular biology grade NaCl ♦ M_r 4 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

DNase/RNase not detected.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	≤ 5 ppm

Cat.No.	Size	EUR
39781.01	250 g	20,00
39781.02	1 kg	29,00

■ **Sodium chloride solution, 5 M** molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected.

Composition: NaCl (cat. no. 39781) 292.2 g/l

Cat.No.	Size	EUR
39782.01	1 L	59,00

■ **Sodium dihydrogen phosphate-2H₂O** molecular biology grade

(Sodium phosphate monobasic (prim. sodium phosphate))

 $\text{NaH}_2\text{PO}_4\cdot 2\text{H}_2\text{O}$ ♦ M_r 156.01 ♦ CAS [13472-35-0]

HS 28352200

DNase/RNase not detected.

Assay	98.0 - 100.5 %
Sulfate (SO_4)	max. 0.03 %
Heavy metals (Pb)	max. 0.001 %

Cat.No.	Size	EUR
39784.01	250 g	35,00
39784.02	1 kg	58,00

■ **di-Sodium hydrogen phosphate-2H₂O** molecular biology grade

(Sodium phosphate dibasic (sec. sodium phosphate))

 $\text{Na}_2\text{HPO}_4\cdot 2\text{H}_2\text{O}$ ♦ M_r 177.99 ♦ CAS [10028-24-7]

HS 28352200

DNase/RNase not detected. Buffering substance.

Assay	min. 99.5 %
pH 5 % solution	9.0 - 9.2
Heavy metals (Pb)	max. 0.001 %

Cat.No.	Size	EUR
39783.01	250 g	32,00
39783.02	1 kg	55,00

■ **D-Sorbitol** molecular biology grade

(D-Glucitol)

 $\text{C}_6\text{H}_{14}\text{O}_6$ ♦ M_r 182.2 ♦ CAS [50-70-4]

EINECS 200-061-5 ♦ HS 29054499

DNase/RNase not detected.

Assay (HPLC)	97.0 - 102.0 %
MP	98 - 102 °C

Cat.No.	Size	EUR
39785.01	500 g	27,50

■ **20xSSC buffer** molecular biology grade

WGK 1 ♦ HS 38220000

DNase/RNase not detected. 20 x concentrated aqueous solution. Commonly used buffer in transfer, blocking and hybridization in both Northern and Southern Blotting

Composition:

NaCl (cat. no. 39781) 175.32 g/L (3 M)
 $\text{Na}_3\text{-citrate} \times 2 \text{H}_2\text{O}$ 88.23 g/L (0.3 M)
 (cat. no. 38642)

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (pp. 7.46-7.47, 9.38-9.39, 9.50)
2. Ed. Ausubel et al., (1995) Current Protocols in Molecular Biology, Wiley & Sons, Inc. (New York, NY), Suppl. **40**, A.2.5

Cat.No.	Size	EUR
42555.01	1 L	27,00
42555.04	10 L	149,00

■ **Streptavidin lyophil. salt-free**M_r ca. 60000 ♦ CAS [9013-20-1]

HS 35040090

Storage temperature -15 °C to -25 °C

Avidin from *Streptomyces avidinii*, isolated from fermentation filtrates by ion exchange chromatography.

Activity (biotin binding) min. 14.6 U/mg protein.

Unit definition: one unit of streptavidin will bind 1 µg of biotin.

Protein content: 90.0 - 100.0 %

Isoelectric point: 6.5 - 7.5

Cat.No.	Size	EUR
35490.01	1 mg	61,00
35490.02	5 mg	247,00
35490.03	10 mg	427,00

■ **Sucrose analytical grade**

(Saccharose; Cane sugar)

C₁₂H₂₂O₁₁ ♦ M_r 342.3 ♦ CAS [57-50-1]

EINECS 200-334-9 ♦ HS 29400000

Free of DNA, RNA, DNase and RNase. Special grade for biochemistry and density gradient centrifugation. Tested for use in tissue culture.

Assay (HPLC) min. 99.0 %

[α]_D²⁰ (c=20 in water) +66 ± 1 °

A 1 cm/50 % in water

260 nm max. 0.25

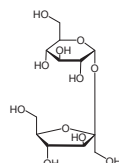
280 nm max. 0.2

Iron (Fe) max. 0.5 ppm

Lead (Pb) max. 0.1 ppm

References:1. Fraenkel-Conrat, H. & Singer, B. (1962) *Biochemistry* **1**, 120-8 (p. 127)

Cat.No.	Size	EUR
35579.02	500 g	14,00
35579.03	5 kg	97,00
35579.04	25 kg	398,00

■ **TAE buffer (10x)**

WARNING

H315-H319 ♦ WGK 2 ♦ HS 38220000

10 x concentrated aqueous solution.

TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 48.46 g/l (0.4 M)

EDTA-Na₂-salt (cat. no. 11280) 3.72 g/l (0.01 M)

Acetic acid 12.01 g/l (0.2 M)

References:1. Sambrook, Fritsch, Maniatis (1989) *Molecular Cloning*, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42553.01	1 L	25,00
42553.04	10 L	149,00

■ **TAE buffer (50x) molecular biology grade**

HS 38220000

50x concentrated aqueous solution.

DNase/RNase not detected. TAE buffer is used for the electrophoresis of nucleic acids. TAE has a lower buffer capacity than TBE, however linear ds DNA tends to run faster in TAE than in TBE.

TRIS (cat. no. 37180) 242.3 g/l

EDTA-Na₂ 2H₂O (cat. no. 11280) 18.6 g/l

Acetic acid 60.05 g/l

Cat.No.	Size	EUR
42549.01	1 L	43,00

■ **TBE buffer (10x)**

DANGER

H315-H319-H360DF ♦ WGK 1 ♦ HS 38220000

10 x concentrated aqueous solution.

TBE buffer is widely used for the electrophoresis of nucleic acids and has a higher buffer capacity than TAE. It can be used for DNA and RNA polyacrylamide and agarose gel electrophoresis.

Composition:

Tris (cat. no. 37180) 107.78 g/l (0.89 M)

EDTA-Na₂-salt (cat. no. 11280) 7.44 g/l (0.02 M)

Boric acid (cat. no. 15165) 55.0 g/l (0.89 M)

References:1. Sambrook, Fritsch, Maniatis (1989) *Molecular Cloning*, Cold Spring Harbor Laboratory Press (B.23, p.6.7)

Cat.No.	Size	EUR
42557.01	2 x 500 ml	29,50

■ **TE Buffer (100x)**

HS 38220000

100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/l (1 M)

EDTA-Na₂-salt (cat. no. 11280) 37.22 g/l (0.1 M)

pH 8.0 ± 0.2

Cat.No.	Size	EUR
42554.01	1 L	26,50

■ **TE Buffer (100x) pH 8.0 molecular biology grade**

WGK 2 ♦ HS 38220000

DNase/RNase not detected. 0.2 µm filtered. 100 x concentrated aqueous solution.

Tris (cat. no. 37180) 121.14 g/l (1 M)

EDTA-Na₂-salt (cat. no. 11280) 37.22 g/l (0.1 M)

pH 8.0 ± 0.2

Cat.No.	Size	EUR
39799.01	100 ml	18,00
39799.02	500 ml	49,00

■ **Tris buffer pH 7.5, 1 M solution molecular biology grade**

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37180) 121.14 g/l

pH (20 °C, adjusted with HCl) 7.5 ± 0.1

Cat.No.	Size	EUR
39791.01	1 L	44,50

■ **Tris buffer pH 8.0, 1 M solution molecular biology grade**

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37186) 121.14 g/l

pH (20 °C, adjusted with HCl) 8.0 ± 0.1

Cat.No.	Size	EUR
39792.01	1 L	44,50

■ Tris buffer pH 8.8, 1 M solution molecular biology grade

WGK 2 ♦ HS 38220000

DNase, RNase, Protease not detected. The pH value of Tris buffer is temperature and concentration dependent. For Tris buffers, pH increases about 0.03 unit per degree C decrease in temperature, and decreases 0.03 - 0.05 unit per ten-fold dilution.

Composition:

Tris (cat. no. 37186) 121.14 g/l
pH (20 °C, adjusted with HCl) 8.8 ± 0.1

Cat.No.	Size	EUR
39794.01	1 L	44,50

■ Tris(hydroxymethyl)aminomethane molecular biology grade

(TRIS)

C₄H₁₁NO₃ ♦ M_r 121.1 ♦ CAS [77-86-1]

WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

DNase, RNase, Protease not detected.

Assay (titr.) min. 99.9 %
Heavy metals (Pb) max. 1 ppm
Iron max. 1 ppm
Arsenic (As) max. 1 ppm
Magnesium (Mg) max. 1 ppm

Cat.No.	Size	EUR
37186.01	100 g	18,00
37186.02	500 g	49,00
37186.03	1 kg	77,00
37186.04	2,5 kg	186,00

■ Tris(hydroxymethyl)aminomethane-hydrochloride

molecular biology grade

(Tris-hydrochloride)

C₄H₁₁NO₃·HCl ♦ M_r 157.6 ♦ CAS [1185-53-1]

WARNING

H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

DNase/RNase Protease not detected.

Assay (titr.) min. 99.0 %
A 1 cm/10 % in water
230 nm max. 0.1
260 nm max. 0.05
280 nm max. 0.03
Heavy metals (as Pb) max. 10 ppm
pH 10 % in water 3.5 - 5.0

Cat.No.	Size	EUR
39787.01	500 g	95,00

■ Triton® X-100 molecular biology grade

(Octylphenol-polyethylene glycol ether, n ca. 10)

CAS [9036-19-5]



DANGER

H302-H318-H412 ♦ WGK 2 ♦ HS 34021300

DNase, RNase, Protease, Phosphatase not detected.

HLB 13.5.

® Registered trademark of Union Carbide

Cat.No.	Size	EUR
39795.01	50 ml	20,50
39795.02	250 ml	37,50

■ Tween® 20 molecular biology grade

(Polysorbate 20; Polyoxyethylene sorbitan monolaureate, n ca. 20)

M_r ca. 1200 ♦ CAS [9005-64-5]

EINECS 500-018-3 (NLP) ♦ WGK 1L ♦ HS 34021300

DNase/RNase not detected. HLB 16.7.

Heavy metals max. 10 ppm
Water max. 3.0 %

® Registered trademark of ICI, Ltd.

Cat.No.	Size	EUR
39796.01	100 ml	23,50

■ Urea molecular biology grade

(Carbamide; Carbonyl diamide)

CH₄N₂O ♦ M_r 60.06 ♦ CAS [57-13-6]

EINECS 200-315-5 ♦ WGK 1L ♦ HS 29241900

DNase/RNase not detected

Assay (from N) 99.0 - 100.5 %
A 1 cm/8 M in water
260 nm < 0.15
280 nm < 0.1
Heavy metals (as Pb) < 10 ppm
Iron (Fe) max 0.5 ppm

Cat.No.	Size	EUR
39305.01	500 g	21,50

■ Water demineralized, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size	EUR
39800.01	500 ml	36,00

■ Water DEPC (0.1 %) treated, sterile molecular biology grade

HS 28530010

DNase/RNase not detected. Autoclaved.

Cat.No.	Size	EUR
39798.03	500 ml	30,00

Products for Isoelectric Focusing:
see special chapter at p. 190

Microbiology

SERVA's powder media, peptones, gelling agents and other supplements for nutrient media provide the highest quality, consistency and performance for your research and bioproduction needs.

Powder Media

A range of standard powder media made from high-quality reagents for cultivation of *E. coli*, bacteriophages and yeast in molecular biology.

■ LB Agar (Lennox), Powder 35 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone
5 g/l Yeast extract
5 g/l NaCl
15 g/l Agar

For making 1 L liquid medium suspend 35 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving. Cool to 45 °C prior to dispensing into sterile petri dishes.

References:

1. Luria, S.E., et al., *Virology* **12**, 348-390 (1960)
2. Miller, J.H., *Experiments in Molecular Genetics*, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size	EUR
48502.01	700 g	55,00

■ LB Medium (Lennox), Powder 20 g for 1 liter medium

WGK 1 ♦ HS 38210000

For cultivation of *E. coli* in molecular biology.

10 g/l Tryptone
5 g/l Yeast extract
5 g/l NaCl

For making 1 L liquid medium suspend 20 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

References:

1. Luria, S.E., et al., *Virology* **12**, 348-390 (1960)
2. Miller, J.H., *Experiments in Molecular Genetics*, p. 433, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY 1972

Cat.No.	Size	EUR
48501.01	500 g	38,00

■ M9-Minimal salts 5x, Powder 52.5 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and plasmid amplification in molecular biology

30 g/l Na₂HPO₄
15 g/l KH₂PO₄
5 g/l NH₄Cl
2.5 g/l NaCl

For making 1 L 5x concentrate dissolve 52.5 g in 1 L distilled water and sterilize by autoclaving. The 5x concentrate can be stored and diluted as needed to prepare 5 L of 1x M9 minimum salts.

References:

1. Sambrook, J., et al., *Molecular Cloning : A Laboratory Manual*, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48505.01	525 g	52,00

■ YPD Agar, Powder 65 g for 1 liter medium

HS 38210000

A nutritious general growth medium for the propagation of yeast

20 g/l Tryptone
10 g/l Yeast extract
20 g/l Dextrose
15 g/l Agar

For making 1 L agar medium, suspend 65 g in 1 L distilled water and sterilize by autoclaving. Cool to 45 °C prior dispensing into sterile petri dishes.

References:

1. Ed. Ausubel et al. (1994) *Current Protocols in Molecular Biology*, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
48508.01	650 g	65,00

■ YPD Medium, Powder 50 g for 1 liter medium

HS 38210000

A nutritious general growth medium for the propagation of yeast.

20 g/l Tryptone
10 g/l Yeast extract
20 g/l Dextrose

For making 1 L liquid medium suspend 50 g in 1 L distilled water and sterilize by autoclaving.

References:

1. Ed. Ausubel et al. (1994) *Current Protocols in Molecular Biology*, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
48507.01	500 g	48,00

■ 2xYT Agar, Powder 46 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and M13 bacteriophages in molecular biology.

16 g/l Tryptone
10 g/l Yeast extract
5 g/l NaCl
15 g/l Agar

For making 1 L 2x liquid medium suspend 46 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving. Cool to 45 °C prior to dispensing into sterile petri dishes.

References:

1. Sambrook, J., et al., *Molecular Cloning : A Laboratory Manual*, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48504.01	460 g	58,00

■ 2xYT Medium, Powder 31 g for 1 liter medium

HS 38210000

For cultivation of *E. coli* and M13 bacteriophages in molecular biology.

16 g/l Tryptone
10 g/l Yeast extract
5 g/l NaCl

For making 1 L 2x liquid medium suspend 31 g in 900 ml distilled water, adjust the pH to 7.0 with approximately 0.2 ml of 5 N NaOH, fill up to a final volume of 1 L with deionized water and sterilize by autoclaving.

References:

1. Sambrook, J., et al., *Molecular Cloning : A Laboratory Manual*, 2nd ed., p. A.3, Cold Spring Harbor laboratory Press, Cold Spring Harbor, New York

Cat.No.	Size	EUR
48503.01	620 g	57,00

Peptones

Peptones are an important source for carbon, nitrogen and amino acids in growth media for microorganisms. Our product range comprises peptones suitable for all applications from analytical microbiology to industrial fermentation as well as for growth of undemanding to fastidious microorganisms.

If a source of non-animal origin is important, you can choose between several peptones made from vegetables.

■ Peptone acid hydrolysate from vegetable

HS 35040090

Peptone acid hydrolysate is prepared by acid hydrolysis of vegetable proteins and is suitable for use in culture media requiring an amino acid mixture. Its growth promotional characteristics match with casein acid hydrolysate.

It can be used for preparing antibiotic sensitivity test media, in media requiring quantitative addition of tryptophan and in vaccine preparation media as a source of high concentration of free amino acids.

Total nitrogen (TN)	min. 6.0 %
Amino nitrogen	min. 3.0 %
Loss on drying	max. 5.0 %
Residue on ignition	max. 44.0 %
pH (1 % solution)	5.5 – 7.5
Sodium chloride	max. 4.0 %

Cat.No.	Size	EUR
48668.01	250 g	65,00
48668.02	1 kg	210,00

■ Peptone from casein enzymatic

HS 35040090

High quality source of peptides and amino acids produced by enzymatic digestion of casein. Refined hydrolysate that has been specially processed to increase solubility. Suitable as nutrient for laboratory media and industrial fermentation.

Total nitrogen (TN)	min. 10.0 %
Amino nitrogen (AN)	min. 3.9 %
pH (2 % solution)	6.5 – 7.5

Cat.No.	Size	EUR
48600.04	250 g	33,00
48600.02	1 kg	97,00

■ Peptone from casein pancreatic

HS 35040090

High quality source of peptides and amino acids produced by pancreatic digestion of casein. Suitable as nutrient for laboratory media and industrial fermentation and to support growth of fastidious microorganisms.

Total nitrogen (TN)	min. 12.0 %
Loss on drying	max. 5.0 %
Ash	max. 15.0 %
pH (1 % solution)	7.0 – 7.4
Sodium chloride	max. 5.0 %

Cat.No.	Size	EUR
48661.01	250 g	65,00
48661.02	1 kg	210,00

■ Peptone PLUS from casein enzymatic

HS 35040090

Manufactured by controlled enzymatic hydrolysis of casein. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 500 Dalton. For analytical microbiology and industrial fermentation.

Total nitrogen	12.5 – 13.5 %
Amino nitrogen	3.0 – 4.0 %
AN/TN x 100	22 – 33
Solubility (5 % in water)	complete
pH (5 % solution)	6.5 – 7.5

Cat.No.	Size	EUR
48605.01	250 g	42,00
48605.02	1 kg	135,00

■ Peptone from lactalbumin pancreatic

(Edamin S)
HS 35040090

Readily soluble pancreatic digest of lactalbumin recommended for production of Lactobacilli and other fermentations.

Total nitrogen	11.0 – 13.0 %
Amino nitrogen	4.5 – 6.5 %
Solubility (6 % in water)	complete
pH (6 % in water)	ca. 6.7 – 7.7

Cat.No.	Size	EUR
48625.06	250 g	39,00
48625.02	1 kg	101,00
48625.03	5 kg	395,00

■ Peptone from meat pancreatic

HS 35040090

Ph. Eur. Certificate of Suitability. Produced by controlled enzymatic hydrolysis of animal tissues. Contains a mix of peptides, free amino acids and growth factors. Peptide average molecular weight: ca. 1000 Dalton.

Recommended as source of organic nitrogen in media for analytical microbiology and industrial fermentation.

Total nitrogen	15.0 – 16.0 %
Amino nitrogen	3.0 – 4.0 %
AN/TN x 100	18 – 26
Solubility (5 % in water)	complete
pH (5 % solution)	5.0 – 6.0

Cat.No.	Size	EUR
48619.01	250 g	40,00
48619.02	1 kg	120,00

■ Peptone from meat enzymatic

HS 35040090

Prepared by enzymatic digestion of selected fresh lean meat obtained from healthy animals. Used in general purpose culture media for routine cultivation of a variety of microorganisms and as well in large scale cultivation of microorganisms used for antibiotic, enzyme and vitamin production.

Total nitrogen (TN)	min. 11.5 %
Amino nitrogen	min. 3.0 %
Loss on drying	max. 5.0 %
Ash	max. 15.0 %
pH (1 % solution)	6.0 – 7.0
Sodium chloride	max. 6.0 %

Cat.No.	Size	EUR
48663.01	250 g	65,00
48663.02	1 kg	210,00

■ Peptone from soybean enzymatic

HS 35040090

Produced by controlled enzymatic hydrolysis of soybean meal. Contains a mix of peptides and free amino acids. Peptide average molecular weight: ca. 500 Dalton. For bacteriology and industrial fermentation.

Total nitrogen	8.5 – 10.2 %
Amino nitrogen	2.5 – 3.5 %
AN/TN x 100	26 – 36
Solubility (5 % in water)	complete
pH (5 % solution)	6.6 – 7.6

Cat.No.	Size	EUR
48640.02	250 g	43,00
48640.03	1 kg	130,00

■ Peptone from vegetable III

HS 35040090

Peptone from vegetable III is an enzymatic hydrolysate of specially selected vegetable proteins and is recommended for use in bacteriological media. It can successfully replace meat peptone like e.g. peptone from meat, pancreatic (cat. no. 48619).

It is recommended for use in general purpose culture media for routine cultivation of a variety of microorganisms. It is as well suitable for mass scale cultivation of microorganisms for antibiotics, enzymes, vitamins production or for other similar products of microbial origin.

Total nitrogen (TN)	min. 10.0 %
Amino nitrogen	min. 3.5 %
Loss on drying	max. 4.5 %
Residue on ignition	max. 10.0 %
pH (1 % solution)	6.3 – 7.3
Sodium chloride	max. 4.5 %

Cat.No.	Size	EUR
48666.01	250 g	65,00
48666.02	1 kg	210,00

■ Tryptone from casein pancreatic

HS 35040090

Total nitrogen (TN)	12.5 – 13.5 %
Amino nitrogen (AN)	3.5 – 4.5 %
AN/TN x 100	26 – 37
pH (2 % solution)	6.5 – 7.5

Cat.No.	Size	EUR
48647.01	250 g	35,00
48647.02	1 kg	95,00

■ Tryptone Type-I pancreatic

HS 35040090

Prepared by pancreatic digest of milk protein casein. Very rich source of amino nitrogen.

Used in the production of various general media such as Tryptone Water etc. and as well in the production of sterility testing media and various diagnostic media.

Total nitrogen (TN)	min. 12.0 %
Amino nitrogen	min. 3.5 %
Loss on drying	max. 5.0 %
Ash	max. 12.0 %
pH (1 % solution)	6.2 – 7.2
Sodium chloride	max. 5.0 %

Cat.No.	Size	EUR
48660.01	250 g	65,00
48660.02	1 kg	210,00

Supplements

High-quality media additives and gelling agents are the key for good growth and selection of microorganisms.

According to your needs you can choose between an economic type of agar agar like Agar Agar SERVA Kobe I (cat. no. 11395) or a highly purified type like Agar Agar SERVA high gel-strength (cat. no. 11396). If you need clear gels and virtually no lot to lot variations, use Gelrite® (cat. no. 22168) as alternative for agar agar.

■ Agar Agar SERVA powder analytical grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Highly purified. Suitable for immunodiffusion.

Gel strength (g/cm ² , 1.5 % gel)	min. 600
Point of solidification	39 – 43 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.5
525 nm	max. 0.45
Loss on drying	max. 10.0 %
Ash	max. 4.0 %
pH in water (60 °C)	6.0 – 7.0

Cat.No.	Size	EUR
11393.02	100 g	44,00
11393.03	250 g	79,00
11393.04	1 kg	245,00

■ Agar Agar SERVA high gel-strength powder research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for *in vitro* culture of plants or bacteriology, no turbidity with phosphates.

Gel strength (g/cm ² , 1.5 % gel)	min. 700
Point of solidification	32 – 35 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.2
525 nm	max. 0.1
Loss on drying	max. 10.0 %
Ash	max. 4 %
pH 1.5 % in water (60 °C)	6.0 – 8.0

Cat.No.	Size	EUR
11396.02	250 g	53,00
11396.03	1 kg	149,50
11396.04	5 kg	575,00

■ Agar Agar SERVA Kobe I in stripes, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Threadlike, bleached; tested for use in nutrient media. Economic alternative to cat. no. 11392.

Gel strength (g/cm ² , 1.5 % gel)	> 400
Point of solidification	30 – 40 °C
A 1 cm/1.5 % in water (60 °C)	
430 nm	max. 0.5
525 nm	max. 0.45
Loss on drying	max. 25.0 %
Ash	max. 6.5 %
pH 1.5 % in water (60 °C)	5.0 – 8.0

Cat.No.	Size	EUR
11395.03	1 kg	85,00
11395.04	5 kg	365,00

■ Agar Agar SERVA Kobe I powder, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for bacteriology.

Gel strength (g/cm², 1.5 % gel) min. 800

Point of solidification 35 - 43 °C

A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.5

525 nm max. 0.45

Loss on drying max. 15.0 %

Ash max. 1.5 %

pH 1.5 % in water (60 °C) 6.0 - 8.0

Cat.No.	Size	EUR
11392.03	1 kg	95,00
11392.04	5 kg	425,00

■ Albumin bovine Fraction V, pH 7.0

microbiological grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as albumin stabilizer. The product is furthermore solvent-treated and thoroughly diafiltered. Specially developed for the growth of leptospira, treponemas and other fastidious microorganisms such as mycobacteria, trypanosomes, other protozoans etc.

Assay (CAF) min. 98.0 %

pH (7% in H₂O) 6.8 - 7.2

Cat.No.	Size	EUR
11934.01	25 g	52,00
11934.02	100 g	165,00
11934.03	500 g	650,00

■ Gelatin

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Ph. Eur. Special quality for bacteriology. A 5 % solution liquefies at 25 - 30 °C and begins to set at 19 - 25 °C.

Cat.No.	Size	EUR
22151.02	500 g	34,00

■ Gelrite®

(Agar Substitute; K9A-40; Gellan-Gum)

CAS [71010-52-1]

EINECS 275-117-5 ♦ WGK 1 ♦ HS 39131000

Polysaccharide produced by bacteria. Useful alternative to agar for the *in vitro* culture of many plants. Yields very clear gels. Constant quality from lot to lot.

Gelrite = registered trademark of Merck & Co., Inc. USA

References:

1. Shungu, D. et al. (1983) Appl. Environm. Microbiol. **46**, 840-5
2. Sanderson, G. & Clark, R. (1983) Food Technology **37**, 63-70

Cat.No.	Size	EUR
22168.01	250 g	95,00
22168.02	1 kg	350,00

■ Sodium chloride cryst. research grade

NaCl ♦ M, 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.) 99.0 - 100.5 %

Heavy metals (Pb) ≤ 5 ppm

Cat.No.	Size	EUR
30183.01	1 kg	14,00

■ Yeast extract SERVABACTER® powder

CAS [8013-01-2]

EINECS 232-387-9 ♦ HS 38210000

Water soluble fraction of yeast autolysate. A 2 % aqueous solution is clear and has a pH of ca. 6.5 - 7.5. Rich in B-vitamins and growth factors, convenient standard material for culture media. Tested for use in tissue culture.

Cat.No.	Size	EUR
24540.02	500 g	40,00
24540.03	5 kg	220,00

SERVAGe™ PRiME™
precast gels for SDS PAGE:
see special chapter at p. 203

Plant Biology

SERVA's cellulase and macerozyme preparations are optimal for isolation of protoplasts. Our gelling agents, auxins and other additives provide the highest quality, consistency and performance for your plant cell culture needs.

Enzymes

Cellulase »Onozuka« from *Trichoderma viride*

1 U/mg Special quality for ELOS analysis by VDLUFA

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Recommended quality for ELOS analysis by VDLUFA.

Temperature optimum: 40 - 50 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (2).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 µmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
16418.01	2,5 g	37,00
16418.02	10 g	105,00
16418.03	50 g	425,00

Cellulase »Onozuka« R-10 from *Trichoderma viride*

ca. 1 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 40 - 50 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 µmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16419.02	2,5 g	38,00
16419.03	10 g	108,00
16419.05	50 g	435,00

Cellulase »Onozuka« RS from *Trichoderma viride*

ca. 2 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity (EC 3.2.1.4), it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Contains about three times as high xylanase activity as Cellulase Onozuka R-10 (cat. no. 16419). Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 50 - 60 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: Contains α-amylase, pectinase, protease and hemicellulase.

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16420.01	1 g	42,00
16420.02	5 g	134,00

Cellulase from *Trichoderma viride* ca. 0.2 U/mg

CAS [9012-54-8]



DANGER

H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

An enzyme complex derived from the fermentation of a selected strain. Hydrolyzes or degrades cellulosic materials from a wide variety of sources depending on enzyme dosage, reaction conditions and the type of material being treated. Besides a high cellulase activity (EC 3.2.1.4) the preparation exhibits hemicellulase and amylase activity. Another feature is its macerating activity which is capable of cell wall decomposition.

Temperature optimum: 50 - 60 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (1).

Extraneous activities: contains α-amylase, pectinase, protease and hemicellulase.

References:

1. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-263

Cat.No.	Size	EUR
16427.01	50 g	50,00
16427.02	250 g	190,00

Macerozyme R-10 from *Rhizopus sp.* lyophil.

(»Macerating Enzyme«; »Cell Separating Enzyme«)
EC 3.2.1.15 ♦ CAS [9032-75-1]



DANGER
H334 ♦ EINECS 232-885-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

Macerozyme R-10 is suitable for the isolation of plant cells, and can be used in combination with cellulase »Onozuka R-10« (cat. no. 16419) (1, 2) and with Cellulase »Onozuka RS« (cat. no. 16420).

Activities: Pectinase ca. 0.5 U/mg

Unit definition: 1 U catalyzes the liberation of 1 µmole of reducing groups from pectic acid per minute at 25 °C, pH 4.5 calculated as galacturonic acid. Reducing groups determined with alkaline copper reagent (2).

Hemicellulase: ca. 0.25 U/mg

Unit definition: 1 U is equivalent to 1 µmole of reducing groups released from beechwood xylan per hour at 37 °C, pH 5.5, calculated as xylose.

Cellulase: ca. 0.1 U/mg

Unit definition: 1 U catalyzes the liberation of 1 µmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

pH-optimum: 3.5 - 7.0

Temperature optimum: 40 - 50 °C.

References:

1. Yamada, Y. et al. (1972) Agr. Biol. Chem. **36**, 1055-9
2. Barraclough, R. & Ellis, R.J. (1979) Eur. J. Biochem. **94**, 165-77
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
28302.02	2,5 g	43,00
28302.03	10 g	125,00
28302.04	50 g	475,00

Reagents

Adenine analytical grade

(6-Aminopurine)
C₅H₅N₅ ♦ M_r 135.1 ♦ CAS [73-24-5]



DANGER
H301 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-796-1 ♦ WGK 1 ♦ HS 29335995

Assay (titr.) 98.0 - 102.0 %



Cat.No.	Size	EUR
10739.02	25 g	32,00
10739.03	100 g	102,00

Agar Agar SERVA high gel-strength powder research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for *in vitro* culture of plants or bacteriology, no turbidity with phosphates.

Gel strength (g/cm², 1.5 % gel) min. 700
Point of solidification 32 - 35 °C
A 1 cm/1.5 % in water (60 °C)

430 nm max. 0.2
525 nm max. 0.1
Loss on drying max. 10.0 %
Ash max. 4 %
pH 1.5 % in water (60 °C) 6.0 - 8.0

Cat.No.	Size	EUR
11396.02	250 g	53,00
11396.03	1 kg	149,50
11396.04	5 kg	575,00

Agar Agar SERVA Kobe I in stripes, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Threadlike, bleached; tested for use in nutrient media. Economic alternative to cat. no. 11392.

Gel strength (g/cm², 1.5 % gel) > 400
Point of solidification 30 - 40 °C
A 1 cm/1.5 % in water (60 °C)
430 nm max. 0.5
525 nm max. 0.45
Loss on drying max. 25.0 %
Ash max. 6.5 %
pH 1.5 % in water (60 °C) 5.0 - 8.0

Cat.No.	Size	EUR
11395.03	1 kg	85,00
11395.04	5 kg	365,00

Agar Agar SERVA Kobe I powder, research grade

CAS [9002-18-0]

EINECS 232-658-1 ♦ WGK 1 ♦ HS 13023100

Choice quality for bacteriology.

Gel strength (g/cm², 1.5 % gel) min. 800
Point of solidification 35 - 43 °C
A 1 cm/1.5 % in water (60 °C)
430 nm max. 0.5
525 nm max. 0.45
Loss on drying max. 15.0 %
Ash max. 1.5 %
pH 1.5 % in water (60 °C) 6.0 - 8.0

Cat.No.	Size	EUR
11392.03	1 kg	95,00
11392.04	5 kg	425,00

6-Benzylaminopurine research grade

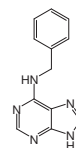
(BA; N⁶-Benzyladenine)

C₁₂H₁₁N₅ ♦ M_r 225.3 ♦ CAS [1214-39-7]



WARNING
H302-H315-H319-H332-H335 ♦ EINECS 214-927-5 ♦
WGK 1 ♦ HS 29335995

Assay (HPLC) min. 99.0 %
MP 230 - 233 °C
λ max. (0.001 % in 0.1M HCl) 274 - 278 nm



Cat.No.	Size	EUR
14812.01	1 g	20,00
14812.02	5 g	58,00

Gelrite®

(Agar Substitute; K9A-40; Gellan-Gum)

CAS [71010-52-1]

EINECS 275-117-5 ♦ WGK 1 ♦ HS 39131000

Polysaccharide produced by bacteria. Useful alternative to agar for the *in vitro* culture of many plants. Yields very clear gels. Constant quality from lot to lot.

Gelrite = registered trademark of Merck & Co., Inc. USA

References:

1. Shungu, D. et al. (1983) Appl. Environm. Microbiol. **46**, 840-5
2. Sanderson, G. & Clark, R. (1983) Food Technology **37**, 63-70

Cat.No.	Size	EUR
22168.01	250 g	95,00
22168.02	1 kg	350,00

Gibberellic acid cryst. pract.

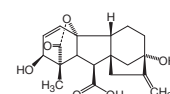
(Gibberellin-A₃)

C₁₉H₂₂O₆ ♦ M_r 346.4 ♦ CAS [77-06-5]

HS 29322985

Plant growth factor from *Fusarium moniliformis*.

Assay (HPLC) min. 90.0 %



Cat.No.	Size	EUR
22278.01	1 g	20,00
22278.02	5 g	68,00
22278.03	25 g	250,00

■ Indole-3-acetic acid research grade

(IAA; Heteroauxins; Auxins)
 $C_{10}H_9NO_2$ ♦ M_r 175.2 ♦ CAS [87-51-4]
 EINECS 201-748-2 ♦ HS 29339980
 Storage temperature +2 °C to +8 °C

Assay (titr.) 97.0 - 103.0 %
 MP 165 - 169 °C

References:

1. Graffeo, A. et al. (1976) Clin. Chem. **22**, 184-7

Cat.No.	Size	EUR
26181.01	5 g	27,00

■ Indole-3-butyric acid research grade

(4-(3-Indolyl)butyric acid; IBA; Auxins)
 $C_{12}H_{13}NO_2$ ♦ M_r 203.24 ♦ CAS [133-32-4]

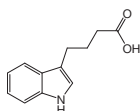


DANGER
 H301-H315-H319-H335 ♦ GGVSE/
 ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 205-101-5 ♦ WVK 2 ♦ HS 29339980
 Storage temperature +2 °C to +8 °C

Plant growth regulator. Sensitive to light, store in the dark.

Assay (titr.) min. 99.0 %
 Water (KF) max. 1.0 %



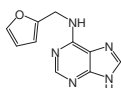
Cat.No.	Size	EUR
26172.02	5 g	24,00
26172.03	25 g	80,00
26172.04	100 g	198,00

■ Kinetin analytical grade

(6-Furfurylaminopurine)
 $C_{10}H_9N_5O$ ♦ M_r 215.21 ♦ CAS [525-79-1]
 EINECS 208-382-2 ♦ HS 29349990

Plant growth regulator.

Assay (HPLC) min. 99.5 %



Cat.No.	Size	EUR
27190.02	1 g	31,00
27190.04	5 g	93,00

■ Murashige and Skoog minimal organic powder medium



DANGER
 H271 ♦ GGVSE/ADR 5.1 III UN1479 ♦ IATA 5.1 III UN1479 ♦
 HS 38210000

Storage temperature +2 °C to +8 °C

Murashige and Skoog plant salts **with** i-inositol and thiamine hydrochloride.
Without agar and **without** sucrose.

Supplements:

Agar (cat. no. 11396) 8 g/l
 Sucrose (cat. no. 35579) 30 g/l

References:

1. Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size	EUR
47515.04		24,00
47515.03		78,00

■ Murashige and Skoog Plant salts



DANGER
 H271 ♦ GGVSE/ADR 5.1 III UN1479 ♦ IATA 5.1 III UN1479 ♦
 HS 38210000

References:

1. Murashige, T. & Skoog, F. (1962) Physiol. Plant. **15**, 473-97

Cat.No.	Size	EUR
47516.04	10 L	21,00
47516.03	50 L	68,00

Cell Culture

Insect powder media, enzymes and reagents for cell and tissue dissociation, media supplements, growth factors and extracellular matrices - SERVA's products for cell culture provide the quality and consistency you need and ensure reproducible results and successful research.

Amino Acids

■ L-Arginine-HCl cell culture grade

(Arg HCL; L-2-Amino-5-guanidinovaleric acid hydrochloride)
 $C_6H_{14}N_4O_2 \cdot HCl$ ♦ CAS [1119-34-2]

EINECS 214-275-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.2 %
 Ammonium (NH₄) max. 0.02 %
 Chloride (Cl) max. 17.0 %
 Sulfate (SO₄) 0.02 %
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47201.01	100 g	22,50
47201.02	1 kg	121,00

■ L-Arginine base cell culture grade

(Arg; L-2-Amino-5-guanidinovaleric acid)
 $C_6H_{14}N_4O_2$ ♦ CAS [74-79-3]

EINECS 200-811-1 ♦ HS 29224985

Assay (titr.) min. 98.5 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying max. 0.5 %
 Ammonium (NH₄) max. 0.02 %
 Chloride (Cl) max. 0.02 %
 Sulfate (SO₄) 0.02 %
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47200.01	100 g	22,50
47200.02	1 kg	121,00

■ L-Asparagine-monohydrate cell culture grade

(Asn; L-2-Aminosuccinamic acid)
 $C_4H_8N_2O_3 \cdot H_2O$ ♦ CAS [5794-13-8]

EINECS 200-735-9 ♦ HS 29224985

Assay (titr.) min. 99.0 %
 Endotoxin ≤ 6.0 E.U./g
 Loss on drying 10.5 - 12.5 %
 Ammonium (NH₄) max. 1000 ppm
 Chloride (Cl) max. 200 ppm
 Sulfate (SO₄) max. 200 ppm
 Heavy metals (as Pb) max. 10 ppm
 Iron (Fe) max. 10 ppm

Cat.No.	Size	EUR
47202.01	100 g	22,00
47202.02	1 kg	136,00

■ L-Aspartic acid cell culture grade

(Asp; L-Aminosuccinic acid; L-2-aminobutanedioic acid)
 $C_4H_7NO_4$ ♦ CAS [56-84-8]

EINECS 200-291-6 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47203.01	100 g	19,50
47203.02	1 kg	121,00

■ L-Glutamic acid cell culture grade

(L-2-Aminoglutaric acid; Glu)
 $C_5H_9NO_4$ ♦ M_r 147.13 ♦ CAS [56-86-0]

EINECS 200-293-7 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47205.01	250 g	31,00

■ L-Glutamine cell culture grade

(L-Glutamic acid-5-amide; L-2-Gln; Aminoglutaramic acid)
 $C_5H_{10}N_2O_3$ ♦ CAS [56-85-9]

EINECS 200-292-1 ♦ HS 29224985

Assay (titr.)	min. 99.0 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.2 %
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 200 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47204.01	100 g	25,00
47204.02	250 g	47,00
47204.03	1 kg	165,00

■ Glycine cell culture grade

(Aminoacetic acid; Glycocoli)
 $C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Loss on drying	max. 0.2 %
Chloride (Cl)	max. 70 ppm
Sulfate (SO_4)	max. 65 ppm
Heavy metals (as Pb)	max. 10 ppm

Cat.No.	Size	EUR
47206.01	250 g	31,00

■ L-Histidine-HCl monohydrate cell culture grade

(His-HCl; L-2-Amino-3-(4-imidazolyl)propionic acid hydrochloride)
 $C_6H_9N_3O_2 \cdot HCl \cdot H_2O$ ♦ M_r 209.6 ♦ CAS [5934-29-2]

EINECS 213-754-2 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	7.0 - 10.0 %
Ammonium (NH_4)	max. 0.02 %
Chloride (Cl)	16.66 - 17.08 %
Sulfate (SO_4)	0.02 %
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47208.01	100 g	47,00
47208.02	500 g	127,00

■ L-Histidine base cell culture grade

(His; L-2-Amino-3-(4-imidazolyl)propionic acid)
 $C_6H_9N_3O_2$ ♦ M_r 155.16 ♦ CAS [71-00-1]

EINECS 200-745-3 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.2 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 200 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47207.01	100 g	34,00
47207.02	500 g	134,00

■ L-Isoleucine cell culture grade

((2S, 3S)-2-Amino-3-methylpentanoic acid; 2-amino-3-methylvaleric acid; ILE)

$C_6H_{13}NO_2$ ♦ M_r 131.17 ♦ CAS [73-32-5]

EINECS 200-798-2 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.2 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47209.01	25 g	17,00
47209.02	100 g	43,00

■ L-Leucine cell culture grade

(Leu; L-2-Amino-4-methylpentanoic acid; 2-Amino-4-methylvaleric acid)

$C_6H_{13}NO_2$ ♦ M_r 131.2 ♦ CAS [61-90-5]

EINECS 200-522-0 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.8 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47210.01	100 g	33,00
47210.02	500 g	110,00

■ **L-Lysine-HCl** cell culture grade

(Lys-HCl; L-2,6-Diaminohexanoic acid-HCl; 2,6-Diaminocaproic acid-HCl)
 $C_6H_{14}N_2O_2 \cdot HCl$ ♦ M_r 182.7 ♦ CAS [657-27-2]

EINECS 211-519-9 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 30 ppm

Cat.No.	Size	EUR
47211.01	100 g	33,00
47211.02	500 g	110,00

■ **L-Phenylalanine** cell culture grade

(Phe; L-2-Amino-3-phenylpropionic acid)

$C_9H_9NO_2$ ♦ M_r 165.19 ♦ CAS [63-91-2]

EINECS 200-568-1 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47213.01	100 g	33,00
47213.02	500 g	132,00

■ **L-Serine** cell culture grade

(Ser; L-2-Amino-3-hydroxypropionic acid)

$C_3H_7NO_3$ ♦ M_r 105.09 ♦ CAS [56-45-1]

EINECS 200-274-3 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47215.01	100 g	46,00
47215.02	500 g	180,00

■ **L-Threonine** cell culture grade

(Thr; L-2-Amino-3-hydroxybutyric acid)

$C_4H_9NO_3$ ♦ M_r 119.1 ♦ CAS [72-19-5]

EINECS 200-774-1 ♦ HS 29224985

Assay (titr.)	min. 99.0 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 20 ppm

Cat.No.	Size	EUR
47216.01	25 g	15,00
47216.02	100 g	30,00
47216.03	500 g	103,00

■ **L-Tryptophan** cell culture grade

(Trp; L-2-Amino-3-(indolylepropionic acid))

$C_{11}H_{12}N_2O_2$ ♦ M_r 204.2 ♦ CAS [73-22-3]

EINECS 200-795-6 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 20 ppm

Cat.No.	Size	EUR
47217.01	25 g	22,00
47217.02	100 g	65,00
47217.03	500 g	270,00

■ **L-Tyrosine** cell culture grade

(Tyr; L-2-Amino-3-(4-hydroxyphenyl)-propionic acid; L-3-(4-Hydroxyphenyl)-alanine)

$C_9H_9NO_3$ ♦ M_r 181.2 ♦ CAS [60-18-4]

EINECS 200-460-4 ♦ HS 29224985

Assay (titr.)	min. 99.0 %
Endotoxin	≤ 40.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47218.01	100 g	40,00
47218.02	500 g	170,00

■ **L-Valine** cell culture grade

(Val; L-2-Amino-3-methylbutyric acid; L-2-Amino-isovaleric acid)

$C_5H_{11}NO_2$ ♦ M_r 117.15 ♦ CAS [72-18-4]

EINECS 200-773-6 ♦ HS 29224985

Assay (titr.)	min. 98.5 %
Endotoxin	≤ 6.0 E.U./g
Loss on drying	max. 0.5 %
Ammonium (NH_4)	max. 200 ppm
Chloride (Cl)	max. 200 ppm
Sulfate (SO_4)	max. 300 ppm
Heavy metals (as Pb)	max. 10 ppm
Iron (Fe)	max. 10 ppm

Cat.No.	Size	EUR
47219.01	25 g	16,00
47219.02	100 g	31,00
47219.03	500 g	115,00

Enzymes and Proteins

SERVA Collagenase NB grades are particularly suitable for various tissue isolation applications. The application of pharmaceutical manufacturing standards guarantees stringent quality control, high quality, reliable lot-to-lot consistency and excellent performance of the product.

For efficient and gentle detachment of adherent cells and high cell viability you have the choice between our ready-to-use Trypsin-EDTA solution (cat. no. 37297) or our highly purified, lyophilized trypsin 1:250 preparation (cat. no. 37289).

The high biological activity and high purity of SERVA's growth factors and supplements like albumin or transferrin guarantee optimal growth conditions and cell viability and ensure the reliability and consistency of your cell culture research.

In tissue, cells have a three-dimensional environment, completely surrounded by other cells, membranes, fibrous layers, and adhesion proteins. Culturing cells on flat plastic ware results in artificial two-dimensional sheets of cells. Collagen R solution, fibronectin and other extracellular matrices, scaffolds and proteins help to establish *in vivo* like morphology and physiologically relevant environments for more realistic cell biology and better intercellular interactions.

■ Albumin bovine Low Hormone lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Albumin purity	> 97.0 %
Total protein	> 92.0 %
pH (10 % solution)	6.5 – 7.4
Mesophilic germs	< 100 CFU/g
Hormones:	
FT4	< 0.04 pg/mg
FT3	< 0.006 pg/mg
Insulin	< 0.002 µU/mg

Cat.No.	Size	EUR
11947.01	10 g	30,00
11947.02	25 g	65,00
11947.03	100 g	185,00

■ Albumin bovine Fraction V, pH 7.0 Life Science grade, lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Highly purified albumin ideal for use in biotechnology, diagnostics, research and other life science applications.

First isolated by a proprietary heat shock/organic solvent process and further purified by non-solvent based methodologies to reduce IgG and endotoxins to very low levels.

Contains >90 % monomeric albumin that retains many of the binding, transfer and physical properties of native albumin.

Purity (CAF)	≥ 98.0 %
pH (1 % in 0.15 NaCl)	6.8 – 7.2
Moisture (Lod)	≤ 5.0 %
Heavy metals	≤ 20 ppm
IgG	≤ 50 µg/g
Mycoplasma	none detected
Viral agents	none detected

Cat.No.	Size	EUR
11946.01	25 g	77,00
11946.02	100 g	225,00

■ Albumin bovine Low Endotoxin biotechnology grade

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113. Suitable as growth promoter in serum-free media for the cultivation of animal cells and as supplement in microbiological media.

Assay (CAF)	min. 97.0 %
pH (7 % in H ₂ O)	5.0 – 6.0
Moisture (KF)	0 – 8 %
Endotoxin (LAL)	max. 10 EU/mg
IgG	not detectable

Cat.No.	Size	EUR
47321.01	25 g	50,00
47321.02	100 g	185,00
47321.03	500 g	795,00

■ Albumin bovine Fraction V, Very Low Endotoxin lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, using caprylic acid as an albumin stabilizer. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as nutrient in serum-free cell culture media. Suitable in perfusion media for hormone response studies and as hapten carrier for antibody production.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 – 7.2
Moisture (KF)	max. 5.0 %
Endotoxin (LAL)	max. 2 EU/mg

Cat.No.	Size	EUR
47324.01	1 g	24,00
47324.02	5 g	57,00
47324.03	25 g	225,00

■ Albumin bovine Fraction V, Very Low Endotoxin, Fatty Acid Free lyophil.

(BSA)

M_r ca. 67 000 ♦ CAS [9048-46-8]

EINECS 232-936-2 ♦ WGK 1 ♦ HS 35029020

Storage temperature -15 °C to -25 °C

Manufactured by a proprietary heat-shock fractionation process, followed by treatment to lower fatty acids and lipids. The production process includes steps to ensure low endotoxin and IgG levels. Tested negative for mycoplasma and the bovine viruses BVD, IBR, P13, Adeno, Parvo, Rabies, Reo and Bluetongue, in accordance with 9CFR 113.

Especially designed as growth factor in albumin supplemented culture media for animal cells and microorganisms. Excellent growth medium supplement for hybridomas and the production of monoclonal antibodies. Suitable for in-vitro binding and transport studies.

Assay (CAF)	min. 98.0 %
pH (7 % in H ₂ O)	6.8 – 7.2
Total lipids (mg/g)	max. 2
Fatty Acids (mg/g)	max. 0.2
Moisture (KF)	max. 5.0 %
Endotoxin level	max. 2 EU/mg
(by Limulus Amebocyte Lysate)	

Cat.No.	Size	EUR
47299.02	1 g	26,00
47299.03	5 g	90,00
47299.04	25 g	380,00

■ Albumin bovine, 30 % Solution Polymer Enhanced

(BSA)

 M_r ca. 67 000

WGK 1 ♦ HS 35029020

Storage temperature +2 °C to +8 °C

Higher avidity exclusively controlled through pure albumin polymerisation. Does not contain artificial avidity enhancers or high molecular weight agglutination potentiators (e.g. PVP, gum acacia, or dextran). Does not contain caprylic acid or other stabilizers. IgG not detectable. Suitable as diluent/stabilizer in various RIA and EIA test systems, for various serological reagents, and for cross-matching procedures and antibody screening or titration.

Protein (Biuret)	29 - 31 g/dL
pH	7.2 - 7.4
NaCl (coulometric titrator)	0.6 - 0.7 g/dL
Preservative (sodium azide)	0.08 - 0.12 g/dL

Cat.No.	Size	EUR
11937.01	25 ml	30,00
11937.02	100 ml	88,00

■ Albumin human lyophil.

 M_r ca. 67 000 ♦ CAS [70024-90-7]

HS 35029020

Storage temperature +2 °C to +8 °C

Suitable as cell culture supplement that functions as a carrier protein for fatty acids, growth factors, trace minerals and protects cells from damage both physically and by binding toxins. Diluent/stabilizer for antisera, enzymes, and sensitive biopolymers in order to maintain particular properties. Each lot is tested and found to be negative for antibodies to HIV-1, HIV-2, HCV, HTLV-1, HTLV-2 and HBsAg, for syphilitic serology and for HIV-1 and HCV RNA.

Total protein	> 92.0 %
HSA purity	> 97.0 %
pH (10 % in H ₂ O)	6.5 - 7.4

Cat.No.	Size	EUR
11877.01	1 g	33,00
11877.02	5 g	89,00
11877.03	25 g	345,00

■ (+)-Biotin cryst. research grade

(d-Biotin; Vitamin H)

 $C_{10}H_{16}N_2O_3S$ ♦ M_r 244.3 ♦ CAS [58-85-5]

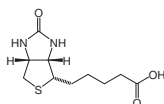
EINECS 200-399-3 ♦ WGK 1L ♦ HS 29362900

USP, Ph. Eur. Tested for use in tissue culture.

Assay (titr.)	98.5 - 100.5 %
Heavy metals	max. 10 ppm

References:

1. Knappe, J. (1970) Annu. Rev. Biochem. **39**, 757-76
2. Bayer, E. & Wilchek, M. (1974) Methods Enzymol. **34**, 265-7



Cat.No.	Size	EUR
15060.02	500 mg	27,00
15060.03	2,5 g	90,00

■ Collagen R solution 0.2 % sterile

 M_r ca. 300 000

HS 35040090

Storage temperature +2 °C to +8 °C

Type 1 rat tail collagen; 2 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:

1. Miller, E.J. (1976) Mol. Cell. Biochem. **13**, 165-91
2. Strom, S.C. & Michalopoulos, G. (1982) Methods Enzymol. **82**, 544-55

Cat.No.	Size	EUR
47254.01	20 ml	79,00
47254.02	100 ml	324,00

■ Collagen R solution 0.4 % sterile

 M_r ca. 300 000

HS 38220000

Storage temperature +2 °C to +8 °C

Type I rat tail collagen; 4 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:

1. Strom, S.C. & Michalopoulos, G. (1982) Methods Enzymol. **82**, 544-55
2. Miller, E.J. (1976) Mol. Cell. Biochem. **13**, 165-91

Cat.No.	Size	EUR
47256.01	20 ml	143,00

■ Collagenase NB 1 Premium Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER

H315-H317-H334-H335 ♦ EINECS 232-582-9 ♦

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3.00 U/mgEndotoxin: ≤ 10.0 EU/mg (Ph. Eur.)

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB (cat. no. 30301) Collagenase NB 1 Premium Grade is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

For research use only. If cells are intended for transplantation into humans, Collagenase NB 1 GMP Grade (cat. no. 17452) is recommended.

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μ mole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51.

Cat.No.	Size	EUR
17455.03	≥ 2.000 U	870,00

■ Collagenase NB 1 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3000 U/mg

Endotoxin ≤ 10.0 EU/mg (Ph. Eur.)

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB GMP Grade (cat. no. 30303), Collagenase NB 1 GMP Grade is especially applicable to isolation of pancreatic islets of Langerhans. Collagenase NB 1 GMP Grade is recommended for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definitions:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17452.01	≥ 2.000 U	inquire

■ Collagenase NB 4 Standard Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Suitable for different applications in tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

As Collagenase NB 4 Standard Grade has comparable enzymatic properties to Collagenase NB 5 Sterile Grade (cat. no. 17459) and Collagenase NB 6 GMP Grade (cat. no. 17458), this enzyme might also be used in order to establish applications which have to meet sterile or GMP requirements like tissue engineering and transplantation.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17454.02	500 mg	81,00
17454.01	1 g	139,00

■ Collagenase NB 4G Proved Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenase) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced mix of neutral protease, clostripain and trypsin-like activities.

PZ activity (Wünsch): ≥ 0.18 U/mg

Suitable for isolation of a broad variety of cell types, especially for fibroblasts, human and rodent hepatocytes, frog oocytes and epithelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17465.01	500 mg	91,00
17465.02	1 g	165,00

■ Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Microbiological examination: Sterility, absence of *Clostridia*

Sterile according to Ph. Eur.

For applications where the use of sterile collagenase according to the guidelines of the European Pharmacopoeia is required. Collagenase NB 5 Sterile Grade is applicable to tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

See also Collagenase NB 6 GMP Grade (cat. no. 17458).

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17459.03	1 g	263,00

Collagenases:

see special chapter at p. 269

■ Collagenase NB 6 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.100 U/mg

Microbiological examination: Sterility, absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Sterile according to Ph. Eur.

Manufactured according to EU GMP guidelines.

For applications which have to meet GMP requirements like tissue engineering and transplantation.

Collagenase NB 6 GMP Grade is applicable to tissue dissociation such as isolation of human ADSCs, stem cells, chondrocytes, fibroblasts, neuronal and endothelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17458.03	1 g	654,00
17458.04	100 mg	194,00

■ Collagenase NB 8 Broad Range from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains class I and class II collagenase (1) as well as reduced levels of clostripain, trypsin-like activities and neutral protease.

Chromatographically purified.

PZ activity (Wünsch): ≥ 0.90 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Suitable for a broad range of different applications in tissue dissociation such as isolation of rodent pancreatic islets of Langerhans, porcine hepatocytes, cardiomyocytes, tumor cells, muscle cells and human osteoblasts. Increased PZ activity compared to Collagenase NB 4 Standard Grade (cat. no. 17454) and Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17456.01	250 mg	138,00
17456.02	1 g	398,00

■ Collagenase N Reference Content from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Collagenase activity is re-evaluated quarterly.

Reference substance according to GMP guidelines for enzyme activity determination.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17463.01	≥ 50 mg	550,00

■ Collagenase N Reference Identity from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP guidelines.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17464.01	≥ 50 mg	195,00

■ Anti-Collagenase (*Clostridium histolyticum*), polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*.

Polyclonal antibody produced in sheep against Collagenase NB.

IgG fraction purified by Protein G affinity chromatography.

100 μg IgG (1 mg/ml) supplied as solution in PBS with 0.01 % sodium azide.

Anti-Collagenase (*Clostridium histolyticum*) polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody.

Anti-Collagenase polyclonal antibody can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Tested in ELISA and Western blot.

Store aliquots at -15 to -25 °C. Thaw at 4 °C. Avoid freeze and thaw cycles.

Cat.No.	Size	EUR
58050.01	100 μg	342,00

■ Fibroblast growth factor, basic (human) recombinant sterile

(bFGF)

HS 29379000

Storage temperature -15 °C to -25 °C

Produced in *E. coli* and purified by affinity chromatography (1).

Reconstitute in PBS (sterile filtered) to a minimum of 0.1 mg/ml.

Concentration required for 0.5 maximum stimulation of bovine aortic endothelial cells (BAE cells): 0.3 ng/ml cell culture of melanocytes (2).

References:

1. Gospadorowicz, D. et al. (1986) Cell Differentiation **19**, 1-17
2. Halaban, R. et al. (1988) J. Cell Biol. **107**, 1611-9

Cat.No.	Size	EUR
47276.01	10 μg	285,00

■ Fibronectin (human) lyophil. analytical grade, sterile

(HFN)

M_r ca. 450 000 ♦ CAS [86088-83-7]

EINECS 289-149-2 ♦ WGK - ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Enhances cell-cell and cell-substratum adhesion of transformed cells whereby a significant alteration of cellular morphology towards the normal phenotype is observed (1, 2). Lyophilized from a solution of 0.05 M Tris-HCl, 0.1 M NaCl, pH 7.5 after membrane filtration (0.2 microns). Reconstitute with sterile filtered distilled water. Avoid repeated freezing and thawing.

Purity (SDS electrophoresis) > 90.0 %

References:

1. Ali, I.U. et al. (1977) Cell **11**, 115-26
2. Millis, A.J.T. & Hoyle, M. (1978) Nature **271**, 668-9

3. Review:

Kleinman, H.K. et al. (1987) Anal. Biochem. **166**, 1-13

Cat.No.	Size	EUR
21370.02	1 mg	128,00

■ γ-Globulin bovine

M_r 150000 ♦ CAS [9007-83-4]

EINECS 232-706-1 ♦ WGK 1 ♦ HS 30021091

Storage temperature +2 °C to +8 °C

Cohn-Fraction II. Highly purified. Soluble in saline and standard buffers. Suitable to reduce non-specific adsorption of antibody in immunoassay systems. Starting material for the isolation of IgG subclasses.

Assay (CAF) 96.0 - 100.0 %

pH (7 % solution) 6.8 - 7.2

Moisture (KF) max. 5.0 %

Cat.No.	Size	EUR
22550.01	5 g	65,00
22550.02	25 g	235,00

■ Insulin, recombinant human, min. 27.5 IU/mg

M_r ca. 5800 ♦ CAS [11061-68-0]

HS 29371200

Storage temperature -15 °C to -25 °C

Ph.Eur., USP. Identical in structure and function to the native human sequence. Essential for long-term growth of various cell lines. Stimulates the proliferation of cells and supports carbohydrate metabolism. Absence of insulin in the medium may result in disturbances of cell morphology and growth rate. Recommended concentration for use in serum free media is 1 - 10 µg/ml.

Assay 95.0 - 105.0 %

Bacterial endotoxins (IU/mg) max. 10

Cat.No.	Size	EUR
26360.01	50 mg	87,00
26360.02	250 mg	330,00

■ Neutral Protease NB from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Largely free of collagenolytic activity.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB is used in combination with purified Collagenase NB 1 Premium Grade (cat. no. 17455) as well as Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 8 Broad Range (cat. no. 17456).

For research use only. If cells are intended for transplantation into humans, Neutral Protease NB GMP Grade (cat. no. 30303) is recommended.

Unit definition: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30301.11	50 DMC-U	114,00
30301.12	100 DMC-U	165,00

■ Neutral Protease NB GMP Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Vial contains not less than 100 DMC U of neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Largely free of collagenolytic activity.

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB GMP Grade is used in combination with purified Collagenase NB 1 GMP Grade (cat. no. 17452) or Collagenase NB 6 GMP Grade (cat. no. 17458) for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30303.01	≥ 100 DMC-U	inquire

■ Neutral Protease NB High Active Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]

DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains highly active, chromatographically purified neutral protease from *Clostridium histolyticum*.

Neutral protease activity (DMC): ≥ 5.00 U/mg.

Largely free of collagenolytic activity.

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB High Active Grade is used in combination with highly purified Collagenase NB 1 Premium Grade (cat. no. 17455), Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 µmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30302.02	80 DMC-U	175,00

■ Transferrin human (Apo) lyophil.

(Siderophilin)

M_r ca. 77 000

HS 35040090

Storage temperature -15 °C to -25 °C

Iron-poor, iron (Fe) max. 0.003 %. Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Protein content min. 98.0 %

References:

1. Carver, F.J. & Frieden, E. (1978) Biochemistry **17**, 167-72

Cat.No.	Size	EUR
36760.01	50 mg	57,00

Transferrin human (Holo) lyophil., pasteurized

(Siderophilin)

M_r ca. 80 000 ♦ CAS [11096-37-3]

HS 35040090

Storage temperature -15 °C to -25 °C

Iron saturated; iron (μg Fe/g protein): min. 1200.

Donor units tested for HbsAg, Anti-HCV, Anti-HIV-1, anti-HIV-2, and Syphilis by FDA approved tests.

Purity (CAE) min. 98.0 %

Cat.No.	Size	EUR
36756.01	25 mg	50,00
36756.02	100 mg	145,00

Trypsin 1:250 from bovine pancreas lyophil.

3.4.21.4 ♦ CAS [9002-07-7]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦

EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

USP. Serin protease mixture suitable for cell culture. Contains chymotrypsin and non-proteolytic activities. Trypsin 1:250 is a special blend of enzymes designed to maintain maximum cell viability during gentle dissociation.

Customary concentration for use: 250 mg/100 ml, pH 7 – 8.

Trypsin assay: 250 NF/USP U/mg

Total aerobic count plate none detectable

Moulds and yeasts <15 /g

Bacterial count

Salmonella, *Staph. aureus*, *Ps.**aeruginosa*, *Enterococcus sp.* Absent in 10 g material

Unit definition: That amount of enzyme that causes hydrolysis of BAEE (benzoylarginine ethyl ester) such that the increase of light absorbance at 253 nm is 0.003 per minute.

Cat.No.	Size	EUR
37289.01	25 g	55,00
37289.02	100 g	158,00

Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA

WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Suitable for efficient and gentle detachment of adherent cells from culture surfaces, as well as for tissue digestion.

Trypsin: 0.5 mg/ml (0.05 %)

EDTA: 0.22 mg/ml (0.02 %)

Solvent: PBS, without Ca²⁺ and Mg²⁺

Endotoxin: ≤10 EU/ml

SERVA Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA is a solution containing trypsin and EDTA in phosphate buffered saline (PBS) without Ca²⁺ and Mg²⁺. It is a clear and colourless solution that is 0.2 μm filtered and thus ready to use. Each lot is tested for pH-value, osmolality, and sterility. Efficient detachment and high cell viability could be shown for several adherent cell types.

The trypsin powder is derived from porcine pancreas and tested for porcine parvovirus (PPV), mycoplasma and endotoxin. SERVA Trypsin NB Cell Culture Grade complies to trypsin 1:250.

Cat.No.	Size	EUR
37297.01	100 ml	9,30
37297.02	10 x 100 ml	88,00

Media

Insect cells are able to express large quantities of heterologous proteins with complex post-translational modifications. They are ideal not only for basic research, but as well for large scale production.

SERVA's economic insect powder media guarantee maximum growth and protein yield.

Grace's Insect powder medium

HS 38210000

Storage temperature +2 °C to +8 °C

Without sodium bicarbonate, with calcium chloride, with L-glutamine.

Supplements required:

Penicillin G-K-salt 50 U/ml

(cat. no. 31749)*

Streptomycin sulfate 0.1 mg/ml

(cat. no. 35500)

* Original formulation lists Penicillin G-Na-salt

References:

1. Grace, T.D.C. (1962) Nature **195**, 788-92. Yunker, C.E. et al. (1967) Science **155**, 1565-6

Cat.No.	Size	EUR
47308.04	10 L	65,00

Schneider's Drosophila powder medium revised

HS 38210000

Storage temperature +2 °C to +8 °C

Without sodium bicarbonate, without calcium chloride.

Supplements:

Penicillin G-K-salt (cat. no. 31749) 50 U/ml

Streptomycin sulfate 0.1 mg/ml

(cat. no. 35500)

References:

1. Schneider, I. (1964) J. Exp. Zool. **156**, 91-104 and 166

Cat.No.	Size	EUR
47521.04	10 L	85,00

Reagents

SERVA's range of highly pure cell culture reagents covers not only buffers, detergents, vitamins, hormones etc., but as well density gradient media like Nycodenz® or cell adhesion products like Poly-D-lysine 70 000 HBr.

L-Ascorbic acid cryst. research grade

(Vitamin C)

C₆H₈O₆ ♦ M_r 176.1 ♦ CAS [50-81-7]

EINECS 200-066-2 ♦ WGK 1L ♦ HS 29362700

Ph. Eur. Inhibitor of β-N-acetylhexosaminidase (1).

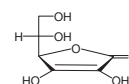
Assay (titr.) min. 99.0 - 100.5 %

[α]₂₀ °C/D

(c=10 in water) +20.5° to + 21.5 °

Heavy metals (Pb) max. 10 ppm

References:

1. Kanfer, J.N. & Spielvogel, C.H. (1973) Biochim. Biophys. Acta **327**, 405-11

Cat.No.	Size	EUR
14030.02	100 g	17,00
14030.03	500 g	42,00

Products for Electrophoresis:
see special chapter at p. 189

■ L-Ascorbic acid-Na-salt research grade

(Sodium-L-(+)-ascorbate)

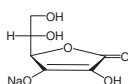
 $C_6H_7O_6Na$ ♦ M_r 198.1 ♦ CAS [134-03-2]

EINECS 205-126-1 ♦ WGK 1 ♦ HS 29362700

Ph. Eur.

Assay (titr.) 99.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
14033.01	100 g	20,00
14033.02	500 g	54,00

■ 2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol analytical grade

(Bis(2-hydroxyethyl)imino-tris(hydroxy methyl) methane; BISTRIS)

 $C_8H_{19}NO_5$ ♦ M_r 209.24 ♦ CAS [6976-37-0]

EINECS 230-237-7 ♦ WGK 1 ♦ HS 29221985

Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

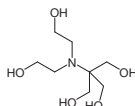
280 nm max. 0.1

Iron (Fe) max. 5 ppm

Lead (Pb) max. 3 ppm

pH 10 % in water 9.4 - 10.4

pKa 20 6.46

References:1. Daabo, M. & Bates, R. (1970) J. Phys. Chem. **74**, 702-5

Cat.No.	Size	EUR
15107.03	100 g	52,00
15107.04	250 g	121,00

■ Buffer substance Dulbecco's

(PBS)

HS 38220000

Phosphate buffered saline, **without** calcium and magnesium; **without** phenol red; powder.**References:**1. Dulbecco, R. & Vogt, M. (1954) J. Exp. Med. **99**, 17-822. Hanks, J.H. & Wallace, R.E. (1949) Proc. Soc. Exp. Biol. Med. **71**, 196-200

Cat.No.	Size	EUR
47302.02	10 L	14,00
47302.03	50 L	42,00

■ Calcium chloride-2H₂O analytical grade

 $CaCl_2 \cdot 2H_2O$ ♦ M_r 147.0 ♦ CAS [10035-04-8]

WARNING

H319 ♦ EG-Index 017-013-00-2 ♦ EINECS 233-140-8 ♦ WGK 1L ♦ HS 28272000

USP, Ph.Eur.

Assay (titr.) 99.0 - 103.0 %

Sulfate max. 0.03 %

Heavy metals (Pb) max. 0.001 %

pH 5 % in water 4.5 - 9.2

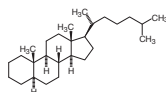
Cat.No.	Size	EUR
15587.02	1 kg	26,00

■ 5α-Cholestane analytical grade

 $C_{27}H_{48}$ ♦ M_r 372.7 ♦ CAS [481-21-0]

EINECS 207-562-8 ♦ HS 29021900

Cat.No.	Size	EUR
17060.02	250 mg	60,00



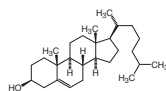
■ Cholesterol cryst. research grade

(3β-Hydroxy-5-cholestene; 5-Cholesten-3β-ol)

 $C_{27}H_{46}O$ ♦ M_r 386.7 ♦ CAS [57-88-5]

EINECS 200-353-2 ♦ WGK 1L ♦ HS 29061900

Assay (GC) min. 95.0 %



Cat.No.	Size	EUR
17101.01	100 g	55,00

■ Choline-chloride research grade

(N-(2-Hydroxyethyl)trimethylammonium-chloride))

 $C_5H_{14}ON^+Cl^-$ ♦ M_r 139.6 ♦ CAS [67-48-1]

EINECS 200-655-4 ♦ WGK 1L ♦ HS 29231000

DAC. Tested for its suitability in tissue culture.

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size	EUR
17130.04	500 g	52,00

■ Collagen R solution 0.2 % sterile

 M_r ca. 300 000

HS 35040090

Storage temperature +2 °C to +8 °C

Type 1 rat tail collagen; 2 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:1. Miller, E.J. (1976) Mol. Cell. Biochem. **13**, 165-912. Strom, S.C. & Michalopoulos, G. (1982) Methods Enzymol. **82**, 544-55

Cat.No.	Size	EUR
47254.01	20 ml	79,00
47254.02	100 ml	324,00

■ Collagen R solution 0.4 % sterile

 M_r ca. 300 000

HS 38220000

Storage temperature +2 °C to +8 °C

Type I rat tail collagen; 4 mg/ml in 0.1 % acetic acid. Excellent substrate for the culture of hepatocytes, fibroblasts, and epithelial cells. Preparation of collagen film and gels (1, 2).

References:1. Strom, S.C. & Michalopoulos, G. (1982) Methods Enzymol. **82**, 544-552. Miller, E.J. (1976) Mol. Cell. Biochem. **13**, 165-91

Cat.No.	Size	EUR
47256.01	20 ml	143,00

■ Coprostanol analytical grade

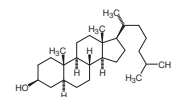
(5β-Cholestan-3β-ol)

 $C_{27}H_{48}O$ ♦ M_r 388.7 ♦ CAS [360-68-9]

EINECS 206-638-8 ♦ HS 29061310

Assay (TLC)

homogeneous



Cat.No.	Size	EUR
27225.01	25 mg	108,00

■ Detergent 7 X® neutral, phosphate-free

WGK 1 ♦ HS 34022090

For tissue culture and molecular biology. Highly active cleaning material, guaranteed to be non-toxic for even the most sensitive organisms.

7 X = registered trademark of ICN Pharmaceuticals Inc.

Cat.No.	Size	EUR
34205.01	1 L	18,00
34205.02	10 L	74,00
34205.03	10 x 10 L	565,00

Dexamethasone research grade

(9 α -Fluoro-11 β ,17,21-trihydroxy-16 α -methyl-1,4-pregnadiene 3,20-dione; Prednisolone F; 1,4-Pregnadiene-3,20-dione-9 α -fluoro-16 α -methyl-11 β ,17 α ,21-triol; 9 α -Fluoro-16 α -methylprednisolone (3,20-dione))

C₂₂H₂₉FO₅ ♦ M_r 392.5 ♦ CAS [50-02-2]



DANGER

H315-H319-H335-H360Df ♦ EINECS 200-003-9 ♦ WGK 1 ♦ HS 29372100

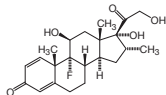
Selectively regulates the activity of enzymatic markers of cerebral endothelial cell lines (1). Inhibits the expression of the inducible but not the constitutive nitric oxide synthase in vascular endothelial cells.

Assay (UV) 97.0 - 103.0 %

References:

1. Juillerat-Jeanneret, L. et al. (1992) In Vitro Cell Dev. Biol. **28A**, 537-43
2. Radomski, M.W. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10043

Cat.No.	Size	EUR
18660.01	100 mg	15,00
18660.02	1 g	68,00



3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium bromide research grade

(MTT; Thiazolyl blue)

C₁₈H₁₆BrN₅S ♦ M_r 414.33 ♦ CAS [298-93-1]

EINECS 206-069-5 ♦ WGK 2L ♦ HS 29341000

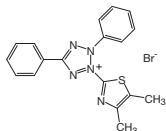
Detection of dehydrogenases in combination with phenazine methosulfate (1). Terminal electron acceptor in the cycling assay for pyridine nucleotides (2). For colorimetric assay to measure cell activation (3, 4).

Assay (titr.) min. 98.0 %

References:

1. Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
2. Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
3. Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
4. Hansen, M.B. et al. (1989) J. Immunol. Methods **119**, 203-10

Cat.No.	Size	EUR
20395.01	250 mg	12,00
20395.02	1 g	25,00
20395.03	5 g	95,00
20395.04	25 g	390,00



Dimethyl sulfoxide research grade

(DMSO)

C₂H₆OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160mg/m³ ♦ EINECS 200-664-3 ♦ WGK 1L ♦ HS 29309099

Highly active solvent and pharmaceutical vehicle; for freezing cells. For gradient centrifugation (1). Determination of cysteine and cystine in proteins (2).

Assay min. 99.0 %
MP min. 18.0 °C
d20 °C 1.1
Water (KF) max. 0.3 %

References:

1. Kelly, R.B. & Sinsheimer, R.L. (1967) J. Mol. Biol. **29**, 229-36
2. Spencer, R.L. & Wold, F. (1969) Anal. Biochem. **32**, 185-90

Cat.No.	Size	EUR
20385.01	250 ml	15,00
20385.02	1 L	29,00

Ethylenediamine tetraacetic acid analytical grade

(EDTA; Ethylenedinitrilo-tetraacetic acid)

C₁₀H₁₆N₂O₈ ♦ M_r 292.3 ♦ CAS [60-00-4]

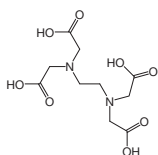


WARNING

H319 ♦ EG-Index 607-429-00-8 ♦ EINECS 200-449-4 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11278.01	100 g	11,50
11278.02	1 kg	40,50



Ethylenediamine tetraacetic acid-Na₂-salt analytical grade

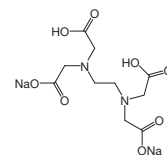
(Versene disodium; EDTA-disodium)

C₁₀H₁₄N₂O₈·Na₂·2H₂O ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
11280.01	100 g	12,50
11280.02	1 kg	42,00
11280.03	5 kg	165,00



Ethylenediamine tetraacetic acid-K₃-salt analytical grade

(EDTA-K₃-salt; Versene-K₃-salt)

C₁₀H₁₃N₂O₈·K₃·2H₂O ♦ M_r 442.55 ♦ CAS [65501-24-8]

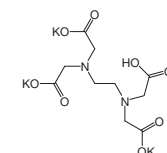


WARNING

H319-H412 ♦ EINECS 241-543-5 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min 99.0 %

Cat.No.	Size	EUR
11277.02	100 g	32,50



FICOLL™ 400

M_r 300 000 - 500 000 ♦ CAS [26873-85-8]

WGK 1 ♦ HS 39139000

Suited for preparation of continuous and discontinuous density gradients. For stabilization of membrane-bound particles, isolation of lymphocytes. Dialyzable material (including NaCl) max. 1 %. Better osmotic properties than sucrose, it preserves functional and morphological integrity and does not penetrate biological membranes.

FICOLL™ 400 is a neutral, highly branched, hydrophilic polymer of sucrose which dissolves readily in aqueous solution. Concentrations up to 50 % (w/v), covering a density range up to 1.2 g/ml, can be obtained without exceeding normal osmolality.

FICOLL = trademark of GE Healthcare companies.

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.15, 6.12)

Cat.No.	Size	EUR
21373.01	10 g	32,00
21373.02	50 g	120,00

Flavin adenine dinucleotide-Na-salt pure

(FAD-Na₂)

C₂₇H₃₁N₇O₁₅·P₂·Na₂·2H₂O ♦ M_r 865.56 ♦

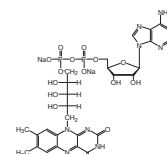
CAS [84366-81-4]

EINECS 282-733-8 ♦ WGK 1 ♦ HS 29349990

Storage temperature +2 °C to +8 °C

Assay (photometric, dried subst.) min. 95.0 %
pH 1 % in water 6.2 ± 0.5
Water max. 10.0 %

Cat.No.	Size	EUR
21490.02	100 mg	42,00



Folic acid cryst. research grade

(Pteroylmonoglutamic acid; Folsäure)

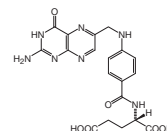
C₁₉H₁₉N₇O₆ ♦ M_r 441.4 ♦ CAS [59-30-3]

EINECS 200-419-0 ♦ WGK 1L ♦ HS 29362900

Ph. Eur.

Assay (HPLC) 96.0 - 102.0 %

Cat.No.	Size	EUR
21700.02	25 g	23,00
21700.03	100 g	71,00



Gelatin

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Ph. Eur. Special quality for bacteriology. A 5 % solution liquefies at 25 - 30 °C and begins to set at 19 - 25 °C.

Cat.No.	Size	EUR
22151.02	500 g	34,00

■ Gelatin, liquid

M_r ca. 60 000 ♦ CAS [9000-70-8]

HS 35030080

From fish skin. Solids content 44.0 - 46.0 %. Contains methyl-/propyl-PHB as preservative. Specially prepared and purified gelatin. Supplied as a pourable liquid. Completely water soluble, even at room temperature and at high concentrations. Acts as a protective colloid.

Cat.No.	Size	EUR
22156.01	100 ml	50,00
22156.02	500 ml	225,00

■ α-D-Glucose anhydrous analytical grade

(Dextrose; α-D-Glucopyranose)

C₆H₁₂O₆ ♦ M_r 180.16 ♦ CAS [50-99-7]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Assay (titr.) min. 99.5 %

Water (loss on drying) max. 0.5 %



Cat.No.	Size	EUR
22700.01	100 g	9,00
22700.02	1 kg	22,50
22700.03	5 kg	79,00

■ α-D-Glucose monohydrate analytical grade

(Dextrose)

C₆H₁₂O₆·H₂O ♦ M_r 198.2 ♦ CAS [5996-10-1]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Ph. Eur.

[α] 20 °C/D +52.5° to +53.3°

Water (K.F.) 7.0 - 9.5 %

Heavy metals (Pb) max. 0.5 ppm



Cat.No.	Size	EUR
22720.01	1 kg	16,00
22720.02	10 kg	85,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade

(HEPES)

C₈H₁₈N₂O₄S ♦ M_r 238.3 ♦ CAS [7365-45-9]

EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

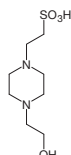
280 nm max. 0.08

Heavy metals (Pb) max. 10 ppm

pH 10 % in water 5.0 - 6.5

References:

- Good, N.E. et al. (1966) Biochemistry **5**, 467-77
- Shipman Jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
- Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6



Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

■ Hypericin research grade

(Hypericum Red; Cyclosan; Mycoporphyrin)

C₃₀H₁₈O₈ ♦ M_r 504.45 ♦ CAS [548-04-9]

EINECS 208-941-0 ♦ HS 29146990

Storage temperature +2 °C to +8 °C

Isolated from *Hypericum perforatum*. Polycyclic dione with anti-retroviral and anticancer activity. Inhibits protein kinase C. Induces photosensitized apoptosis.

Protect from light.

Assay (HPLC, TLC) min. 97.0 %

References:

- Meruelle, D. et al. (1988) Proc. Natl. Acad. Sci. **85**, 5230
- Couldwell, W.T. et al. (1994) Neurosurgery **35**, 705-9
- Weller, M. et al. (1997) Neurol Res. **19**, 459-70
- Lavie, G. et al. (1999) Br. J. Cancer. **79**, 423-32

Cat.No.	Size	EUR
26020.01	1 mg	105,00

■ myo-Inositol research grade

(meso-Inositol; i-Inositol; 1,2,3,5/4,6-Hexahydroxycyclohexane)

C₆H₁₂O₆ ♦ M_r 180.2 ♦ CAS [87-89-8]

EINECS 201-781-2 ♦ WGK 1 ♦ HS 29061390

USP/NF. For bacteriology. Optically inactive. Tested for its suitability in tissue culture.

Assay (HPLC) min. 97.0 %

MP 224 - 227 °C



Cat.No.	Size	EUR
26310.01	100 g	29,00
26310.02	500 g	113,00

■ Magnesium chloride·6H₂O cryst. research grade

MgCl₂·6H₂O ♦ M_r 203.3 ♦ CAS [7791-18-6]

EINECS 232-094-6 ♦ WGK 1L ♦ HS 28273100

Ph.Eur.

Assay (titr.; hydrate) 98.0 - 101.0 %

Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
28305.01	100 g	12,00

■ Morpholinoethane sulfonic acid analytical grade

(MES)

C₆H₁₃NO₄S ♦ M_r 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

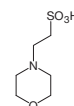
260 nm max. 0.1

280 nm max. 0.1

pH 10 % in water 2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4



Cat.No.	Size	EUR
29834.02	100 g	42,00
29834.04	500 g	165,00
29834.03	1 kg	305,00

Order SERVA products
in bulk quantities
for an even better price.

■ Morpholinoethane sulfonic acid, monohydrate analytical grade

(MES)

 $C_6H_{13}NO_4S \cdot H_2O$ ♦ M_r 213.25 ♦ CAS [145224-94-8]

EINECS 224-632-3 ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/0.1 M in water

260 nm max. 0.05

280 nm max. 0.02

pH 1 % in water 2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29830.01	100 g	39,00
29830.02	250 g	72,00
29830.03	1 kg	195,00
29830.06	500 g	110,00

■ Morpholinopropane sulfonic acid analytical grade

(MOPS)

 $C_7H_{15}NO_4S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

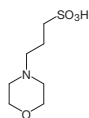
280 nm max. 0.08

pH 10 % in water 3.0 - 5.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00



■ Nycodenz®, 60 % (w/v) solution in water

(Nycoprep® Universal)

 $C_{19}H_{26}N_3O_9$ ♦ M_r 821.1

HS 38220000

Storage temperature +2 °C to +8 °C

Non-ionic density gradient medium, similar to the former Metrizamide but less toxic. Mammalian cells and viruses isolated in Nycodenz® gradients potentially retain better functional integrity than in Metrizamide gradients. Nycodenz® is suitable for the isolation of a wide range of different cell types, viruses, subcellular organelles and other membrane compartments. Gradient preparation and resolution of cellular organelles are largely similar with both media. In contrast to Metrizamide, solutions of Nycodenz® can be sterilized by autoclaving.

Density (20 °C) 1.310 ± 0.002 g/ml

Osmolarity 580 ± 10 mOsm

Refractive index (20 °C) 1.4273 ± 0.0003

Nycodenz + Nycoprep = registered trademarks of Axis-Shield, Norway.

References:

- Johne, R. & Muller, H. (2004) J. Virol. **78**, 930-7
- Whiteley, A.S. et al. (2003) J. Microbiol. Meth. **54**, 257-67
- Masuya, M et al. (2003) Blood **101**, 2215-18
- Schumacher, M.M. et al. (2002) J. Biol. Chem. **277**, 51033-42
- Jadot, M. et al. (2001) Eur. J. Biochemistry **268**, 1392-99
- Miller, K.E. & Sheetz, M.P. (2000) J. Biol. Chem. **275**, 2598-2606
- Wischmann, B. et al. (1999) Plant. Physiol. **119**, 455-62

Cat.No.	Size	EUR
31000.01	50 ml	110,00

■ Phenol Red research grade

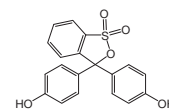
(Phenylsulfonphthalein)

 $C_{19}H_{14}O_5S$ ♦ M_r 354.4 ♦ CAS [143-74-8]

EINECS 205-609-7 ♦ WGK 2L ♦ HS 29349990

Indicator pH 6.5 - 8.0. Tested for use in tissue culture.

λmax. 0.0001 % in 0.01 M NaOH 558 - 562 nm



Cat.No.	Size	EUR
32095.01	5 g	17,00
32095.02	25 g	36,00

■ Phorbol (12-myristoyl-13-acetyl) analytical grade

(PMA; TPA; 12-O-Tetradecanoylphorbol-13-acetate)

 $C_{36}H_{56}O_8$ ♦ M_r 616.8 ♦ CAS [16561-29-8]

DANGER

H300-H310-H330 ♦ MAK/TRK 10 ml/

m³, 50 mg/m³ for chloroform ♦ GGVSE/

ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦ WGK 3 ♦

HS 29159000

Storage temperature -15 °C to -25 °C

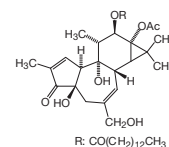
Antileukemic agent (1). Activates protein kinase C (2). Strong inducer of tumor formation, favorite derivative for *in vitro* studies, interferon inducer, along with phytohemagglutinin (3).

Purity (TLC) min. 99.0 %

References:

- Weinberg, J.B. (1981) Science **213**, 665-7
- Skoglund, G. et al. (1985) Eur. J. Biochem. **148**, 407-12
- Yip, Y.K. et al. (1981) Proc. Natl. Acad. Sci. USA **78**, 1601-5

Cat.No.	Size	EUR
32496.01	1 mg	69,00



■ Poly-D-lysine 70 000-HBr research grade

 $(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r 70 000 - 150 000 ♦ CAS [27964-99-4]

HS 35040090

Storage temperature -15 °C to -25 °C

Hygroscopic. „Attachment factor“ in cell culture and proteinase inhibitor.

Cat.No.	Size	EUR
33224.01	25 mg	105,00

■ Poly-L-lysine 70 000-HBr research grade

 $(C_6H_{14}N_2O_2 \cdot HBr)_n$ ♦ M_r ca. 70 000 - 150 000 ♦ CAS [25988-63-0]

WGK 1 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Cat.No.	Size	EUR
33225.01	25 mg	55,00

■ Polyethylene glycol 1500 solution analytical grade, sterile filtered

(PEG 1500)

 M_r ca. 1500

WGK 1L ♦ HS 34042000

Storage temperature +2 °C to +8 °C

Clear sterile filtered solution of PEG 1500 (50 % w/v) in 4 ml of HEPES-buffer (75 mmol/l), pH 8.0. Packed under nitrogen. Free of aldehydes and peroxides, free from Ca^{2+} . Biologically evaluated for high fusion efficiency. Tested as reagent for the fusion of myeloma cells with spleen cells and other hybridoma cells.

Cat.No.	Size	EUR
33123.01	4 ml	39,00
33123.02	4 x 4 ml	129,00

Polysorbate 80 VG for biochemistry

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate)
M_r 1310 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ HS 34021300

Suitable for cell culture, enzymology, membrane research and other biochemical applications. The fatty acids of this product are purely of vegetable origin.

d25 °C	1.06 - 1.09
HLB	15.0
CMC	1 x 10 ⁻⁵ Mol/L
Hydroxyl number	65 - 80 mg KOH/g
Saponification number	45 - 55 mg KOH/g

Cat.No.	Size	EUR
33100.01	500 g	19,00
33100.02	5 kg	105,00

Polysorbate 80 VG

(Montanox® 80; Tween® 80; Polyoxyethylene sorbitane monooleate, n ca. 20)
M_r ca. 1300 ♦ CAS [9005-65-6]

EINECS 500-019-9 ♦ WGK 1L ♦ HS 34021300

Ph. Eur., USP/NF. The fatty acids of this detergent are of vegetable origin.

HLB	15.0
CMC	1 x 10 ⁻⁵ mol/l
d25 °C	1.06 - 1.09
Acid number	max. 2.0 mg/KOH/g
Hydroxyl number	65 - 80 mg/KOH/g
Saponification number	45 - 55 mg/KOH/g
Peroxide value	max. 5 meq/kg
Heavy metals (Pb)	max. 10 ppm

Montanox = registered trademark of Seppic, France.

References:

1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
33116.01	500 g	23,00
33116.02	5 kg	135,00

Potassium chloride research grade

KCl ♦ M_r 74.55 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

Ph. Eur.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
26868.02	1 kg	24,00

Potassium dihydrogen phosphate anhydrous analytical grade

(Potassium phosphate dibasic (sec. potassium phosphate); Potassium phosphate monobasic (prim. potassium phosphate))
KH₂PO₄ ♦ M_r 136.1 ♦ CAS [7778-77-0]

EINECS 231-913-4 ♦ WGK 1 ♦ HS 28352400

Biochemical and enzyme standard. Buffering substance according to Sørensen. 9.072 g in 1 liter water = 1/15 M. Tested for use in tissue culture.

Assay (titr.)	min. 99.0 %
pH 5 % in water	4.1 - 4.5
Heavy metals (Pb)	max. 10 ppm
Nitrogen (N)	max. 10 ppm

Cat.No.	Size	EUR
26870.01	500 g	27,00

di-Potassium hydrogen phosphate anhydrous analytical grade

(sec. Potassium phosphate; Potassium phosphate dibasic (sec. potassium phosphate))
K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Assay	min. 99.0 %
pH 5 % in water	8.7 - 9.3
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
26887.01	500 g	35,00

Progesterone analytical grade

(4-Pregnene-3,20-dione)

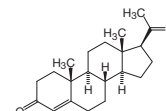
C₂₁H₃₀O₂ ♦ M_r 314.45 ♦ CAS [57-83-0]



DANGER

H351-H360Fd-H362 ♦ Carc. 2, Repr. 1A ♦

EINECS 200-350-6 ♦ WGK 2 ♦ HS 29372900



Ph. Eur.

Assay	97.0 - 103.0 %

Cat.No.	Size	EUR
33530.03	25 g	71,00

Pyridoxal-5-phosphate analytical grade

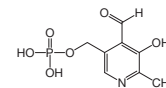
(Codecarboxylase; Pyridoxal-5-phosphoric acid)

C₈H₁₀NO₆P-H₂O ♦ M_r 265.2 ♦ CAS [41468-25-1]

HS 29362500

Storage temperature +2 °C to +8 °C

Assay (anhydrous, HPLC)	99.0 - 101.0 %
Heavy metals (Pb)	max. 10 ppm



Cat.No.	Size	EUR
33940.02	5 g	45,00
33940.03	25 g	145,00

Pyridoxine-HCl research grade

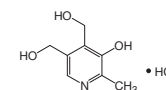
(Pyridoxol-HCl; Vitamin B₆)

C₈H₁₁NO₃-HCl ♦ M_r 205.6 ♦ CAS [58-56-0]

EINECS 200-386-2 ♦ WGK 1 ♦ HS 29362500

Ph. Eur.

Assay (titr.)	99.0 - 101.0 %
Heavy metals (Pb)	max. 20 ppm



Cat.No.	Size	EUR
33990.01	25 g	20,00
33990.02	100 g	49,00

Pyruvic acid-Na-salt research grade

(Sodium pyruvate; Brenztraubensäure-Na)

C₃H₃O₃-Na ♦ M_r 110.04 ♦ CAS [113-24-6]

EINECS 204-024-4 ♦ WGK 1 ♦ HS 29183000

Assay (titr.)	min. 99.0 %
Heavy metals (Pb)	max. 10 ppm



Cat.No.	Size	EUR
15220.01	25 g	19,00
15220.03	100 g	41,00
15220.04	500 g	156,00

Resazurin-Na-salt analytical grade

(Diazoresorcinol)

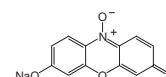
C₁₂H₆NO₄-Na ♦ M_r 251.2 ♦ CAS [62758-13-8]



WARNING

H302-H315-H335 ♦ EINECS 263-718-5

♦ HS 29349990



Indicator pH 3.8 - 6.5. Redox indicator.

Cat.No.	Size	EUR
34226.02	5 g	61,00

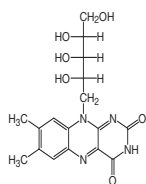
Riboflavin research grade(Lactoflavin; Vitamin B₂)C₁₇H₂₀N₄O₆ ♦ M_r 376.4 ♦ CAS [83-88-5]

EINECS 201-507-1 ♦ WGK - ♦ HS 29362300

Ph. Eur.

Assay (UV)

97.0 - 103.0 %



Cat.No.	Size	EUR
34350.02	25 g	21,00

L-Seleno-MethionineC₅H₁₁NO₂Se ♦ M_r 196.1 ♦ CAS [3211-76-5]

DANGER

H301-H331-H373-H400-H410 ♦ EG-Index 034-002-00-8 ♦ GGVSE/ADR 6.1 II UN3283 ♦ IATA 6.1 II UN3283 ♦ WGK 3 ♦ HS 29310099

Assay
Seleniummin. 99.0 %
39.0 - 41.0 %

Cat.No.	Size	EUR
77765.01	500 mg	295,00
77765.02	100 mg	85,00

Sodium bicarbonate research grade

(Sodium hydrogen carbonate)

NaHCO₃ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1 ♦ HS 28363000

USP, Ph.Eur. Tested for use in tissue culture. Buffering substance.

Assay (titr.)
pH 5 % in water
Heavy metals (Pb)99.0 - 100.5 %
7.9 - 8.4
max. 5 ppm

Cat.No.	Size	EUR
30180.02	1 kg	32,00

Sodium chloride cryst. research gradeNaCl ♦ M_r 58.44 ♦ CAS [7647-14-5]

EINECS 231-598-3 ♦ WGK 1L ♦ HS 25010099

USP, Ph.Eur.

Assay (titr.)
Heavy metals (Pb)99.0 - 100.5 %
≤ 5 ppm

Cat.No.	Size	EUR
30183.01	1 kg	14,00

Sodium dihydrogen phosphate·2H₂O research grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.)

98.0 - 100.5 %

Cat.No.	Size	EUR
30186.02	1 kg	32,00

di-Sodium hydrogen phosphate·2H₂O analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sørensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.)
pH 5 % solution
Heavy metals (Pb)98.0 - 100.5 %
9.0 - 9.2
max. 10 ppm

Cat.No.	Size	EUR
30200.01	500 g	24,00

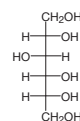
D-Sorbitol research grade

(D-Glucitol)

C₆H₁₄O₆ ♦ M_r 182.2 ♦ CAS [50-70-4]

HS 29054499

Ph. Eur. For bacteriology and pharmacology. Tested for use in tissue culture.

Assay (HPLC)
MP
Lead97.0 - 102.0 %
98 - 102 °C
max. 0.5 ppm

Cat.No.	Size	EUR
35230.02	1 kg	24,00

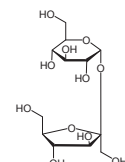
Sucrose analytical grade

(Saccharose; Cane sugar)

C₁₂H₂₂O₁₁ ♦ M_r 342.3 ♦ CAS [57-50-1]

EINECS 200-334-9 ♦ HS 29400000

Free of DNA, RNA, DNase and RNase. Special grade for biochemistry and density gradient centrifugation. Tested for use in tissue culture.

Assay (HPLC)
[α]_D²⁰ (c=20 in water)
A 1 cm/50 % in watermin. 99.0 %
+66 ± 1 °260 nm
280 nm
Iron (Fe)
Lead (Pb)max. 0.25
max. 0.2
max. 0.5 ppm
max. 0.1 ppm**References:**1. Fraenkel-Conrat, H. & Singer, B. (1962) Biochemistry **1**, 120-8 (p. 127)

Cat.No.	Size	EUR
35579.02	500 g	14,00
35579.03	5 kg	97,00
35579.04	25 kg	398,00

Synperonic® F108 pract.M_r ca. 14000 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polypropylene glycol (M_r ca. 3 250): poly(ethylene glycol) ca. 1:4.

MP 55 - 60 °C. Strongly hydrophilic (HLB ca. 27). More than 10 % soluble in water.

Registered trademark of ICI

Cat.No.	Size	EUR
35726.01	100 g	17,00
35726.02	1 kg	53,00

Synperonic® F68 pract.M_r ca. 8300 ♦ CAS [9003-11-6]

WGK 1L ♦ HS 34021900

Polyol detergent, block-copolymer. Pluronic™ PE 6800. Poloxamer 188.

Poly(propylene glycol) (M_r ca. 1 750): poly(ethylene glycol) ca. 1:4.

MP ca. 55 °C.

Strongly hydrophilic detergent (HLB approx. 29). More than 10 % soluble in water, forms foams moderately. Used in cell culture to protect microorganisms, animal and plant cells against mechanical damage.

Synperonic = trademark of ICI, Pluronic = trademark of BASF AG.

References:1. Bentley, P.K. et al. (1989) Biotechnol. Lett. **11**, 111-4
2. King, A.T. et al. (1990) Biotechnol. Lett. **12**, 29-32
3. Murhammer, D.W. & Goochee, C.F. (1990) Biotechnol. Prog. **6**, 142-8

Cat.No.	Size	EUR
35724.01	100 g	17,00
35724.02	1 kg	53,00

■ Taurocholic acid-Na-salt pure

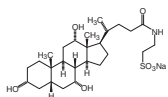
(Sodium taurocholate)

$C_{26}H_{44}NO_5SNa$ aq. $\diamond$ M_r 537.7 (anhydrous) $\diamond$
CAS [145-42-6]

EINECS 205-653-7 $\diamond$ WGK 1 $\diamond$ HS 29181930

Storage temperature +2 °C to +8 °C

Purity (TLC) min. 98.0 %
Cholic acid-Na salt max. 1.0 %



Cat.No.	Size	EUR
35779.02	5 g	105,00

■ Testosterone research grade

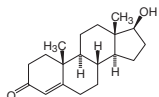
(4-Androsten-17 β -ol-3-one; 17 β -Hydroxy-4-androsten-3-one)

$C_{19}H_{28}O_2$ $\diamond$ M_r 288.4 $\diamond$ CAS [58-22-0]

DANGER
H302-H351-H360DF-H362 $\diamond$
EINECS 200-370-5 $\diamond$ HS 29372900

Ph. Eur.

Assay (UV) 97.0 - 103.0 %



Cat.No.	Size	EUR
35800.02	5 g	37,00

■ Testosterone propionate research grade

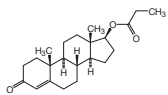
$C_{22}H_{32}O_3$ $\diamond$ M_r 344.5 $\diamond$ CAS [57-85-2]

DANGER
H302-H351-H360 $\diamond$
EINECS 200-351-1 $\diamond$ WGK 2 $\diamond$

HS 29372900

Storage temperature +2 °C to +8 °C

Assay (UV) 97.0 - 103.0 %



Cat.No.	Size	EUR
35805.02	5 g	33,00

■ Thiamine-HCl research grade

(Aneurin; Thiaminium chloride-hydrochloride; Vitamin B₁ hydrochloride)

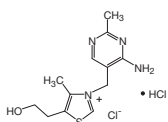
$C_{12}H_{17}ClN_4OS \cdot HCl$ $\diamond$ M_r 337.3 $\diamond$ CAS [67-03-8]

EINECS 200-641-8 $\diamond$ WGK 1L $\diamond$ HS 29362200

Storage temperature +2 °C to +8 °C

Ph. Eur.

Assay, dried (titr.) 98.5 - 101.0 %
Heavy metals (Pb) max. 20 ppm



Cat.No.	Size	EUR
36020.02	100 g	32,00

■ Tween® 80 pure

(Polysorbate 80; Polyoxyethylene sorbitan monooleate, n ca. 20)
 M_r ca. 1300 $\diamond$ CAS [9005-65-6]

EINECS 500-019-9 $\diamond$ WGK 1L $\diamond$ HS 34021300

Ph. Eur., USP/NF. HLB 15.0; tested for use in tissue culture.

Density (25 °C) 1.06 - 1.09
Ethylene oxide value max. 1 ppm
1,4-dioxane content max. 10 ppm
Heavy metals max. 10 ppm
Non animal origin

® Registered trademark of ICI, Ltd.

References:

1. Sato, M. et al. (1989) Int. J. Biochem. **21**, 751-4
2. Masaki, S. et al. (1990) Microbiol. Immunol. **34**, 653-63
3. Okuno, S. & Fujisawa, H. (1990) Biochim. Biophys. Acta **1038**, 204-8

Cat.No.	Size	EUR
37475.01	500 g	22,00
37475.02	5 kg	126,00

■ Vitamin A acetate research grade

(all-trans Retinyl acetate)

$C_{22}H_{32}O_2$ $\diamond$ M_r 328.5 $\diamond$ CAS [127-47-9]



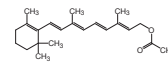
WARNING

H315-H361d $\diamond$ EINECS 204-844-2 $\diamond$ WGK 1 $\diamond$
HS 29362100

Storage temperature +2 °C to +8 °C

Activity (UV) min. 1 350 000 U/g.

Protect from light and air. Store under argon.



Cat.No.	Size	EUR
38220.01	1 g	19,00

■ Vitamin B₁₂ cryst. pure

(Cyanocobalamin; Extrinsic Factor; Antianemic vitamin B)

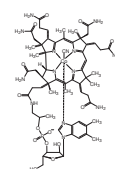
$C_{63}H_{88}N_{14}O_{14}PCo$ $\diamond$ M_r 1355.4 $\diamond$ CAS [68-19-9]

EINECS 200-680-0 $\diamond$ WGK 1L $\diamond$ HS 29362600

Storage temperature +2 °C to +8 °C

USP, Ph.Eur. Protect from light!

Assay (UV), dried 96.0 - 100.5 %
Non animal origin



Cat.No.	Size	EUR
38310.02	500 mg	31,00

■ WST 1

(2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-(2,4-disulfophenyl)-2H-tetrazolium, Na-salt)

$C_{19}H_{11}N_5O_8S_2Na$ $\diamond$ M_r 651.35 $\diamond$ CAS [150849-52-8]



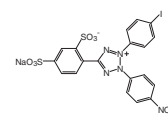
WARNING

H302-H312-H315-H319-H332-H335 $\diamond$
HS 29339980

Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble (>0.1 M) formazan upon reduction. Suitable for cell proliferation and cytotoxicity assays.

Keep dry and dark.



References:

1. Ishiyama, M. et al. (1993) Chem. Pharm. Bull. **41**, 1118
2. Ishiyama, M. et al. (1995) In vitro Toxicol. **8**, 187
3. Ishiyama, M. et al. (1995) Analyst **120**, 113

Cat.No.	Size	EUR
38391.01	25 mg	77,00
38391.02	100 mg	240,00

■ XTT

(Sodium 3,3'-[4-[(Phenylamino)carbonyl]-3,4-Tetrazolium]-Bis(4-methoxy-6-nitro)benzenesulfonic acid hydrate)

$C_{22}H_{18}N_{10}O_{13}S_2Na$ $\diamond$ M_r 674.53 $\diamond$ CAS [111072-31-2]

HS 29339980

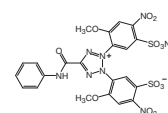
Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble formazan upon reduction. Suitable for anti-HIV (1 - 3) and anti-tumor (4 - 6) drug testing as well as for cell proliferation assays (7 - 8).

References:

1. Weislov, O.S. et al. (1989) J. Natl. Cancer Inst. **81**, 577-86
2. Gulakowski, R.J. et al. (1991) J. Virol. Methods **33**, 87-100
3. Yu, K.L. et al. (1992) J. Med. Chem. **35**, 2958-69
4. Scudiero, D.A. et al. (1988) Cancer Res. **48**, 4827-33
5. Jost, L.M. et al. (1992) J. Immunol. Methods **147**, 153-65
6. Kondo, T. et al. (1994) Oncology **51**, 535-9
7. Roehm, N.W. et al. (1991) J. Immunol. Methods **142**, 257-65
8. Buttke, T.M. et al. (1993) J. Immunol. Methods **157**, 233-40

Cat.No.	Size	EUR
38450.01	50 mg	62,00
38450.02	250 mg	219,00



Enzymology

Enzymes	328
Coenzymes, Cofactors, Nucleotides	341
Enzyme Substrates and Detection	343
Enzyme Inhibitors	350
Buffering Substances	355

In the chapter *Enzymes* you find over 60 highly purified enzyme preparations suitable for applications in plant biology like Cellulase and Macerozyme for chloroplast preparation, in cell culture like Trypsin 1:250 and in many other enzymatic assays like Alkaline Phosphatase, Carbonic Anhydrase etc.

The *Coenzymes*, *Cofactors*, *Nucleotides* and *Enzyme Substrates* necessary for performance of enzymatic assays are listed in the following chapters.

Protease and Phosphatase Inhibitor Mixes especially developed for optimal protection of protein samples can be found together with a comprehensive range of other inhibitors in the chapter *Enzyme Inhibitors*.

SERVA's product range is completed by all necessary *Buffering Substances* for performance of enzymatic assays.

Enzymes

■ Alkaline Phosphatase from calf intestine ca. 3000 U/mg protein (ca. 60 U/μl) solution

(Orthophosphoric-monoester phosphohydrolase (alkaline optimum))
EC 3.1.3.1. ♦ M_r ca. 140 000



DANGER
H334 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

Especially suitable for the preparation of EIA-conjugates. Further dialysis is unnecessary (1). In 50 % glycerol, containing 5 mM Tris, 5 mM MgCl₂, 0.1 mM ZnCl₂, pH ca. 7.0.

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole of 4-nitrophenyl phosphate per minute at 37 °C, pH 9.8 (DEA buffer) (6).

Activity in other units: ca. 1100 U/mg at 25 °C, pH 9.6 (glycine buffer)

Substrates for Alkaline Phosphatase:

4-Nitrophenyl phosphate-Na₂-salt (cat.no. 30770)
Phenolphthalein diphosphate-Na₂-salt (cat.no. 32050)
5-Bromo-4-chloro-3-indoxyl-phosphate-p-toluidine-salt (BCIP) (cat.no. 15247)
5-Bromo-4-chloro-3-indoxyl-phosphate-Na₂-salt (cat.no. 15259)
Naphthol-AS-BI-phosphate (cat.no. 29988)
Naphthol-AS-MX-phosphate (cat.no. 30002)
1-Naphthyl phosphate-Na-salt (cat.no. 30130)

References:

1. Chaconas, G. & van de Sande, J.H. (1980) *Methods Enzymol.* **65**, 75-85
2. Maxam, A.H. & Gilbert, W. (1980) *Methods Enzymol.* **65**, 499-560
3. Williams, D.G. (1984) *J. Immunol. Methods* **72**, 261-8
4. Harlow & Lane (1988) *Antibodies*, Cold Spring Harbor Laboratory Press, p. 349
5. Garen, A. & Levinthal, C. (1960) *Biochim. Biophys. Acta* **38**, 470-83
6. Mössner, E. et al. (1980) *Hoppe-Seyler's Z. Physiol. Chem.* **361**, 543-9

Cat.No.	Size	EUR
32471.01	1 mg	43,00
32471.02	5 mg	159,00

■ Bromelain from pineapple stem ca. 0.5 DMC-U/mg powder

(Stem bromelain)

EC 3.4.22.32 ♦ M_r ca. 33 000 ♦ CAS [37189-34-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-005-00-X ♦
EINECS 253-387-5 ♦ WGK 3L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Suitable for blood group serology (1) and degradation of proteins.

Unit definition: 1 DMC-U catalyzes the cleavage of 1 μmole peptide bond from dimethyl casein per minute at 25 °C, pH 7.0 expressed in terms of newly formed terminal amino groups (determined with TNBS) (2).

Activity in other units: 1200 GDU units/g (1 GDU unit yields the equivalent of 1 mg amino nitrogen from gelatin in 20 min. at 45 °C, pH 4.5).
1200 GDU units/g, 2400 FIP units/g (4).

References:

1. Gray, M.P. (1959) *J. Lab. Clin. Med.* **54**, 155-7
2. Lin, Y. et al. (1969) *J. Biol. Chem.* **244**, 789-93
3. Murach, T. (1976) *Methods Enzymol. Vol. 45*, Acad. Press, New York, p. 475-85
4. Monod, J. (1966) *Pharm.* **4**, 343 (FIP-Method)

Cat.No.	Size	EUR
15250.01	25 g	15,00
15250.02	100 g	44,00
15250.03	500 g	170,00

■ Carbonic anhydrase from bovine erythrocytes ca. 1.5 U/mg lyophil.

(Carbonate dehydratase; Carbonate hydrolyase)

EC 4.2.1.1. ♦ M_r ca. 29 000 ♦ CAS [9001-03-0]



DANGER
H334 ♦ EINECS 232-576-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Contains carbonic anhydrases A and B; both forms have similar high specific activities and therefore belong to the C-group of mammalian carbonic anhydrases (1).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole 4-nitrophenyl acetate per minute at 25 °C, pH 7.6 (2).

Activity in other units: ca. 4000 Wilbur-Anderson units/mg (3).

References:

1. Lindsog, S. et al. (1971) *The Enzymes* (Boyer, P.D., ed.) **5**, 587-665
2. Armstrong, J. McD. et al. (1966) *J. Biol. Chem.* **241**, 5137-49
3. Wilbur, K.M. & Anderson, N.G. (1948) *J. Biol. Chem.* **176**, 147-54

Cat.No.	Size	EUR
15882.01	25 mg	58,00
15882.02	100 mg	165,00
15882.03	500 mg	675,00

■ Catalase from *Aspergillus niger* ca. 1800 U/mg lyophil. salt-free

EC 1.11.1.6 ♦ M_r ca. 240 000 ♦ CAS [9001-05-2]



DANGER
H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Catalase is used for the removal of peroxides, the generation of oxygen and, in coupled systems, for the determination of metabolites e.g. uric acid (1). A very stable preparation particularly suitable for immobilization.

Unit definition: 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

References:

1. Bartl, K. & Ziegenhorn, J. (1985) *Methods of Enzymatic Analysis* (Bergmeyer, H.U., ed.) 3rd Ed. Vol. **7**, p. 134-46
2. Aebi, H.E. (1983) *Methods of Enzymatic Analysis* (Bergmeyer, H.U., ed.) 3rd Ed. Vol. **3**, p. 277-86

Cat.No.	Size	EUR
26905.01	100 mg	30,00

■ Catalase from bovine liver ca. 11 000 U/mg lyophil. salt-free

EC 1.11.1.6 ♦ M_r ca. 240 000 ♦ CAS [9001-05-2]



DANGER
H334 ♦ EINECS 232-577-1 ♦ WGK 1L ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Homogeneous in SDS-PAGE. Ca. 40 000 U/mg protein.

Unit definition: 1 U catalyzes the cleavage of 1 μmole hydrogen peroxide per minute to water and oxygen at 25 °C, pH 7.0. The decrease in hydrogen peroxide concentration can be followed spectrophotometrically at 240 nm (1).

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed) 3rd Ed. Vol. 2, p. 165-6

Cat.No.	Size	EUR
26910.01	250 mg	80,00
26910.02	1 g	260,00

■ Cellulase »Onozuka« from *Trichoderma viride* 1 U/mg

Special quality for ELOS analysis by VDLUFA

CAS [9012-54-8]



DANGER
H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Recommended quality for ELOS analysis by VDLUFA.

Temperature optimum: 40 - 50 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (2).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 μmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
16418.01	2,5 g	37,00
16418.02	10 g	105,00
16418.03	50 g	425,00

■ Cellulase »Onozuka« R-10 from *Trichoderma viride* ca. 1 U/mg

CAS [9012-54-8]



DANGER
H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity, it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides. Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 40 - 50 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: α-amylase ca. 0.8 U, pectinase ca. 0.4 U, protease ca. 0.01 DMC-U, hemicellulase ca. 1 U/mg (1 U catalyzes the liberation of 1 μmole reducing groups from xylan per hour at 37 °C, pH 5.5, calculated as xylose).

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16419.02	2,5 g	38,00
16419.03	10 g	108,00
16419.05	50 g	435,00

■ Cellulase »Onozuka« RS from *Trichoderma viride* ca. 2 U/mg

CAS [9012-54-8]



DANGER
H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A multi-component enzyme system (1). Although the preparation has high cellulase activity (EC 3.2.1.4), it still contains hemicellulases, and it degrades mannans, xylans, galactomannans, pectins and other polysaccharides.

Contains about three times as high xylanase activity as Cellulase Onozuka R-10 (cat. no. 16419). Widely used for the isolation of protoplasts, for its ability to degrade cell walls, often in combination with Macerozyme R-10 (cat. no. 28032) (2).

Temperature optimum: 50 - 60 °C

pH-optimum: pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

Extraneous activities: Contains α-amylase, pectinase, protease and hemicellulase.

References:

1. Beldman, G. et al. (1985) Eur. J. Biochem. **146**, 301-8
2. Potrykus, J. & Shillito, R.D. (1986) Methods Enzymol. **118**, 549-78
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63
4. Lendl & Bauer (1989) Zell- und Gewebekultur, Gustav Fischer Verlag, 147ff.

Cat.No.	Size	EUR
16420.01	1 g	42,00
16420.02	5 g	134,00

Antibiotics:

see special chapter at p. 280

Cellulase from *Trichoderma viride* ca. 0.2 U/mg

CAS [9012-54-8]



DANGER
H334 ♦ EG-Index 647-002-00-3 ♦ EINECS 232-734-4 ♦
HS 35079090

Storage temperature +2 °C to +8 °C

An enzyme complex derived from the fermentation of a selected strain. Hydrolyzes or degrades cellulosic materials from a wide variety of sources depending on enzyme dosage, reaction conditions and the type of material being treated. Besides a high cellulase activity (EC 3.2.1.4) the preparation exhibits hemicellulase and amylase activity. Another feature is its macerage activity which is capable of cell wall decomposition.

Temperature optimum: 50 - 60 °C**pH-optimum:** pH 4 - 5

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (1).

Extraneous activities: contains α-amylase, pectinase, protease and hemicellulase.

References:

- Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-263

Cat.No.	Size	EUR
16427.01	50 g	50,00
16427.02	250 g	190,00

α-Chymotrypsin from bovine pancreas min. 40 U/mg powder

EC 3.4.21.1 ♦ M_r ca. 25 000 ♦ CAS [9004-07-3]

DANGER
H315-H319-H334-H335 ♦ EG-Index 647-011-00-2 ♦
EINECS 232-671-2 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Chymotrypsin A (1). Suitable for the structural elucidation of proteins. Catalyzes the hydrolysis of peptide and ester bonds at the carboxyl group of a variety of amino acids primarily those with aromatic or long aliphatic side chains (2).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-benzoyl-L-tyrosine ethyl ester (BTEE) per minute at 25 °C, pH 7.8 (3).

Activity in other units: ca. 1000 USP units/mg (1 USP unit causes decrease in absorbance at 237 nm of 0.0075 per minute at 25 °C, pH 7.0 with ATEE as substrate) (4).

References:

- Desnuelle, P. & Röver, M. (1961) Adv. Protein Chem. **16**, 139-95
- Desnuelle, P. (1960) The Enzymes 2nd Ed. **4**, 93-118
- Kang, S.H. & Fuchs, M.S. (1973) Anal. Biochem. **54**, 262-5
- USP XXI/NF XVI (1984) United States Pharmacopeial Convention, 216-7

Cat.No.	Size	EUR
17160.01	100 mg	15,00
17160.02	500 mg	46,00

Chymotrypsinogen A from bovine pancreas ca. 60 U/mg lyophil. salt-free

M_r ca. 25 000 ♦ CAS [9035-75-0]

EINECS 232-905-3 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Inactive precursor of chymotrypsin (1, 2).

Unit definition: see cat. no. 17160 (chymotrypsin activity after activation by trypsin).

Activity in other units: ca. 1 200 USP units/mg (potential activity) and ca. 10 USP units/mg (native activity). USP units see cat. no. 17160.

Extraneous activity: ca. 1 U/mg α-chymotrypsin before trypsin activation.

References:

- Desnuelle, P. & Röver, M. (1961) Adv. Protein Chem. **16**, 139-95
- Wilcox, P.E. (1970) Methods Enzymol. **19**, 64-80

Cat.No.	Size	EUR
17200.03	500 mg	68,00

Clostripain NB from *Clostridium histolyticum*

(Clostripain; Clostridiopeptidase B)

EC 3.4.22.8 ♦ M_r ca. 59 000 ♦ CAS [9028-00-6]

DANGER
H315-H317-H319-H334-H335 ♦ EINECS 232-822-2 ♦
WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Clostripain is a proteinase that cleaves peptide bonds on the carboxyl side of arginine. It is also known as Endoproteinase Arg-C.

Specification:

Enzymatic activity: > 50 U/mg.

Unit definition:

1 U catalyzes the hydrolysis of 1 μmole BAEE per minute at 25 °C, pH 7.6, after activation for 3 hours with 1 mM calcium acetate and 2.5 mM dithiothreitol.

References:

- Kula et al. (1976) Biochem. Biophys. Res Commun. **69**, 389-396
- Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17335.01	20 mg	360,00
17335.02	50 mg	720,00
17335.03	100 mg	1.050,00

Collagenase NB 1 Premium Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]

DANGER
H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and

class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3.00 U/mg

Endotoxin: ≤ 10.0 EU/mg (Ph. Eur.)

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB (cat. no. 30301) Collagenase NB 1 Premium Grade is especially applicable to isolation of pancreatic islets of Langerhans from different species like human or pig.

For research use only. If cells are intended for transplantation into humans, Collagenase NB 1 GMP Grade (cat. no. 17452) is recommended.

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

- Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
- Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51.

Cat.No.	Size	EUR
17455.03	≥ 2.000 U	870,00

■ Collagenase NB 1 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically highly purified class I and class II collagenase (1).

Largely free from clostripain, trypsin-like protease and neutral protease.

Vial contains not less than 2000 PZ U collagenase.

PZ activity (Wünsch): ≥ 3000 U/mg

Endotoxin ≤ 10.0 EU/mg (Ph. Eur.)

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

This highly purified collagenase quality is used for isolation of sensitive cells and guarantees high yields and viability. In combination with Neutral Protease NB GMP Grade (cat. no. 30303), Collagenase NB 1 GMP Grade is especially applicable to isolation of pancreatic islets of Langerhans. Collagenase NB 1 GMP Grade is recommended for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definitions:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17452.01	≥ 2.000 U	inquire

■ Collagenase NB 4 Standard Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Suitable for different applications in tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

As Collagenase NB 4 Standard Grade has comparable enzymatic properties to Collagenase NB 5 Sterile Grade (cat. no. 17459) and Collagenase NB 6 GMP Grade (cat. no. 17458), this enzyme might also be used in order to establish applications which have to meet sterile or GMP requirements like tissue engineering and transplantation.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17454.02	500 mg	81,00
17454.01	1 g	139,00

■ Collagenase NB 4G Proved Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenase) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced mix of neutral protease, clostripain and trypsin-like activities.

PZ activity (Wünsch): ≥ 0.18 U/mg

Suitable for isolation of a broad variety of cell types, especially for fibroblasts, human and rodent hepatocytes, frog oocytes and epithelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17465.01	500 mg	91,00
17465.02	1 g	165,00

■ Collagenase NB 5 Sterile Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.10 U/mg

Microbiological examination: Sterility, absence of *Clostridia*

Sterile according to Ph. Eur.

For applications where the use of sterile collagenase according to the guidelines of the European Pharmacopoeia is required. Collagenase NB 5 Sterile Grade is applicable to tissue dissociation such as isolation of human and rodent hepatocytes, chondrocytes, neuronal and endothelial cells, fibroblasts, cells from adipose tissue (e.g. ADSCs), stem cells and rodent osteoblasts.

See also Collagenase NB 6 GMP Grade (cat. no. 17458).

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17459.03	1 g	263,00

Collagenases:

see special chapter at p. 269

■ Collagenase NB 6 GMP Grade from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Contains class I and class II collagenase (1) and a balanced ratio of proteolytic side activities.

PZ activity (Wünsch): ≥ 0.100 U/mg

Microbiological examination: Sterility, absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Sterile according to Ph. Eur.

Manufactured according to EU GMP guidelines.

For applications which have to meet GMP requirements like tissue engineering and transplantation.

Collagenase NB 6 GMP Grade is applicable to tissue dissociation such as isolation of human ADSCs, stem cells, chondrocytes, fibroblasts, neuronal and endothelial cells.

Unit definition: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17458.03	1 g	654,00
17458.04	100 mg	194,00

■ Collagenase NB 8 Broad Range from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains class I and class II collagenase (1) as well as reduced levels of clostripain, trypsin-like activities and neutral protease.

Chromatographically purified.

PZ activity (Wünsch): ≥ 0.90 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Suitable for a broad range of different applications in tissue dissociation such as isolation of rodent pancreatic islets of Langerhans, porcine hepatocytes, cardiomyocytes, tumor cells, muscle cells and human osteoblasts. Increased PZ activity compared to Collagenase NB 4 Standard Grade (cat. no. 17454) and Collagenase NB 4G Proved Grade (cat. no. 17465).

Unit definition:

Collagenase: 1 U according to Wünsch (2) catalyzes the hydrolysis of 1 μmole 4-phenylazobenzoyloxycarbonyl-L-prolyl-L-leucylglycyl-L-prolyl-D-arginine per minute at 25 °C, pH 7.1.

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS.

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51

Cat.No.	Size	EUR
17456.01	250 mg	138,00
17456.02	1 g	398,00

■ Collagenase N Reference Content from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Collagenase activity is re-evaluated quarterly.

Reference substance according to GMP guidelines for enzyme activity determination.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17463.01	≥ 50 mg	550,00

■ Collagenase N Reference Identity from *Clostridium histolyticum*

(Clostridiopeptidase A)

EC 3.4.24.3 ♦ M_r ca. 70 000 - 120 000 (collagenases) ♦ CAS [9001-12-1]



DANGER

H315-H317-H319-H334-H335 ♦ EINECS 232-582-9 ♦
WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Contains class I and class II collagenases (1) and other proteases.

Reference substance for SDS-PAGE analysis, performed for incoming goods inspection according to GMP guidelines.

References:

1. Bond, M.D. & van Wart, H.E. (1984) Biochemistry **23**, 3077-3091

Cat.No.	Size	EUR
17464.01	≥ 50 mg	195,00

■ Creatine kinase from rabbit muscle ca. 240 U/mg lyophil. salt-free

(Creatine phosphokinase)

EC 2.7.3.2 ♦ M_r ca. 80 000 ♦ CAS [9001-15-4]



DANGER

H334 ♦ EINECS 232-585-5 ♦ WGK 1 ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Unit definition: 1 U catalyzes the transfer of 1 μmole of phosphate from phosphocreatine to ADP per minute at 25 °C, pH 6.6 (1).

Extraneous activities: ATPase, LDH, PK each max. 0.001 %

Activity in other units: ca. 40 U/mg

Unit definition: 1 U catalyzes the phosphorylation of 1 μmole creatine per minute at 25 °C, pH 9.0 in the presence of ATP (2).

References:

1. Bergmeyer, H.U., ed. Methods of Enzymatic Analysis, 3rd Ed. Vol. **II**, 176-8
2. Tanzer, M.L. & Gilvarg, C. (1959) J. Biol. Chem. **234**, 3201-2

Cat.No.	Size	EUR
27298.02	25 mg	46,00
27298.03	100 mg	136,00

■ Cyanase™ Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C *

Supplied as solution in 50 mM Tris-HCl pH 8.0, 5 mM MgSO₄, 50 % (v/v) glycerol.

Cyanase is a cloned highly active non-Serratia based non-specific endonuclease that degrades single and double stranded DNA and RNA in as little as 1 minute.

Cyanase is easily removed from samples after the reaction is finished using the Cyanase Inactivation Resin (cat. no. 18543). The resin can be easily filtered or spun down to remove from the sample removing the Cyanase with it.

Because of its unique properties, Cyanase is effective for cell lysate clearance, protein and viral purification and nucleic acid removal from samples.

- Fastest nuclease on the market
- Broad pH range
- Active in higher salt concentrations
- Unaffected by lysozyme or detergent
- Easily inactivated and removed
- Unsurpassed stability, can be stored up to 1 year at room temperature with minimal loss of activity

Concentration	50 u/μl
pH optimum	pH 7.5 - 8.0
Salt optimum	20 mM NaCl
Temperature optimum	24 °C – 37 °C

Unit definition: One Unit is the amount of enzyme that degrades 3 μg of full length λ DNA completely at 37 °C in 1 minute in 50 mM Tris-HCl pH 8.0, 6 mM MnSO₄.

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18542.01	10.000 U	97,00
18542.02	25.000 U	209,00

■ Cyanase™ Inactivation Resin

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase Inactivation Resin is a proprietary blend of Cyanase Inhibitor Protein coupled to Sepharose Fast Flow Resin creating a novel method for inactivating and removing the Cyanase enzyme prior to downstream applications. No more worries about downstream contamination with nucleases or difficult removal processes which may compromise product integrity.

Average Particle Size: 90 μm in 50 % buffer slurry.

- Removal of Cyanase Nuclease simple and easy in as little as 20 min.
- No optimization needed
- Active over a wide range of conditions
- No interactions with other proteins or targets
- Extremely tight interaction between Cyanase and resin

Cyanase = trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18543.01	1 ml	72,00
18543.02	5 ml	325,00

■ Cyanase™ Inactivation Resin Cartridges

HS 38220000

Storage temperature +2 °C to +8 °C

Cyanase™ Inactivation Cartridges combine 50 μl of Inactivation Resin into a 700 μl silica based spin column for easy removal of Cyanase™ from any reaction. Each spin column is a 10 - 20 μm pore size/polypropylene, snap off base, with sealable screw cap. Reactions are mixed and incubated inside the spin column in the same manner that is used for the standard inactivation resin. After mixing for 20 min, samples are then spun down into a provided collection tube for downstream processing. No worry of contaminating downstream samples with resin, no volume additions!

Can be used for Pre-PCR treatment of high sensitivity assays. Just treat PCR master mix with Cyanase™, add to column, incubate with resin, and spin down into collection tube. Target and Primers are added after treatment and PCR is run as normal.

- Ideal for high throughput proteomics or nucleic acid dependent applications
- Amplicon and Pre-PCR clean up of master mixes
- Treatment of samples of low volume/unique buffer properties where additional buffer/products are problematic

Kit contains 20 cartridges and 20 collection tubes and caps for sample recovery.

Cyanase = registered trademark of RiboSolutions, Inc.

Cat.No.	Size	EUR
18544.01	20 reactions	108,00

■ Cytochrome C from horse heart lyophil.

M_r ca. 12400 ♦ CAS [9007-43-6]

EINECS 232-700-9 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Ca. 10 % may be present in the reduced form. Prepared without the use of TCA.

Assay reduced

90.0 - 100.0 %

Cat.No.	Size	EUR
18022.01	25 mg	19,00
18022.02	100 mg	37,00
18022.03	500 mg	143,00

■ Deoxyribonuclease I from Bovine Pancreas min. 3000 Kunitz units/mg lyophil.

(DNase I; Deoxyribonucleodepolymerase; Deoxyribonuclease 5'-oligo-nucleotide hydrolase)

EC 3.1.21.1 ♦ M_r 31 000 ♦ CAS [9003-98-9]

EINECS 232-667-0 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Cleaves preferentially double-stranded DNA (in the presence of Mg⁺⁺-ions single stranded DNA) in oligonucleotides with 5'-terminal phosphate groups.

Unit definition: 1 Kunitz unit catalyzes an increase in absorption of 0.001 at 260 nm per minute at 25 °C, pH 5.0 when acting on highly polymerized calf thymus DNA (1).

Activity: min. 3000 Kunitz units/mg lyophilisate

References:

1. Kunitz, M. (1950) J. Gen. Physiol. **33**, 349-62
2. Laskowski, M. Sr. (1971) The Enzymes **IV**, 3rd Ed. (Boyer, P.D.ed.) Acad. Press N.Y. 289-311
3. Moore, S. (1981) The Enzymes **XIV**, 3rd Ed. (Boyer, P.D. ed.) Acad. Press N.Y. 281-96
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.83, 10.6-10.12, 15.14, 15.16, 15.27-15.31, 13.24-13.25, 13.28-13.29)

Cat.No.	Size	EUR
18535.01	25 mg	45,00
18535.02	100 mg	135,00

■ Elastase from human neutrophils min. 10 U/mg lyophil.

(Leukocyte elastase)

EC 3.4.21.37 ♦ M_r 29 500 ♦ CAS [9004-06-2]



DANGER

H315-H319-H334-H335 ♦ EINECS 232-670-7 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Lyophilized from sodium acetate pH ca. 5 containing NaCl. Degrades connective tissue components and plasma proteins. Implicated in the development of lung emphysema, arthritis and inflammatory conditions.

Unit definition: 1 U releases 1 μmole 4-nitroanilide per minute from MeO-Suc-Ala-Ala-Pro-Val-4-nitroanilide at 25 °C, pH 8.0 (1).

References:

1. Castillo, M.J. et al. (1979) Anal. Biochem. **99**, 53-64
2. Barrett, A.J. (1981) Methods Enzymol. Vol. **80**, 581-8

Cat.No.	Size	EUR
20927.01	100 μg	62,00

■ Elastase from porcine pancreas min. 120 U/mg protein suspension

EC 3.4.21.36 ♦ M_r ca. 25 900

WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

In 70 % saturated ammonium sulfate. For the degradation of proteins and peptides: hydrolyzes especially bonds adjacent to neutral amino acid residues.

25 mg correspond to approx. 3 - 4 ml; 100 mg correspond to approx. 11 - 15 ml.

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

References:

1. Naughton, M. A. & Sanger, F. (1961) Biochem. J. **78**, 156-63
2. Gertler, A. & Hofmann, T. (1970) Can. J. Biochem. **48**, 384-6

Cat.No.	Size	EUR
20931.01	25 mg	40,00
20931.02	100 mg	118,00

■ Elastase from porcine pancreas min. 200 U/mg lyophil. salt-free

(Pancreatopeptidase E)

EC 3.4.21.36 ♦ M_r ca. 25 900 ♦ CAS [39445-21-1]



DANGER

H315-H319-H334-H335 ♦ EINECS 254-453-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins and peptides. Chromatographically purified (1).

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-acetyl-L-alanyl-L-alanyl-L-alanine methyl ester per minute at 25 °C, pH 8.5 (2).

References:

1. Naughton, M. A. & Sanger, F. (1961) Biochem. J. **78**, 156-63
2. Gertler, A. & Hofmann, T. (1970) Can. J. Biochem. **48**, 384-6

Cat.No.	Size	EUR
20929.01	10 mg	80,00
20929.02	25 mg	189,00

■ Glucose-6-phosphate dehydrogenase from *Leuconostoc mesenteroides* ca. 600 U/mg protein suspension

(D-Glucose-6-phosphate: NAD(P)⁺-1-oxidoreductase)

EC 1.1.1.49 ♦ M_r ca. 104 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

The enzyme is useful for the determination of D-glucose (1), D-fructose (2) and D-sorbitol (3). In 70 % saturated ammonium sulfate. 10 mg correspond to approx. 1 ml.

Unit definition: See cat. no. 22820, with NAD⁺ as coenzyme.

Extraneous activities: creatine phosphokinase (CPK), 6-phosphogluconate dehydrogenase (6-PGDH), phosphoglucose isomerase (PGI), phosphoglucomutase (PGM) each <0.01 %, hexokinase (HK) <0.05 %.

References:

1. Kunst, A. et al. (1984) Methods in Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. **6**, p. 163-72
2. Beutler, H.-O. (1984) loc. cit. p. 321-7
3. Beutler, H.-O. (1984) loc. cit. p. 356-62

Cat.No.	Size	EUR
22822.01	10 mg	240,00

■ Glucose-6-phosphate dehydrogenase from yeast ca. 140 U/mg protein suspension

(G6P-DH)

EC 1.1.1.49 ♦ M_r ca. 102 000 ♦ CAS [9001-40-5]

EINECS 232-602-6 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

In 3.2 M ammonium sulfate; pH 6.0.

1 mg corresponds to approx. 0.2 ml, 10 mg correspond to approx. 2 ml.

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose-6-phosphate per minute at 25 °C, pH 7.8 in the presence of NADP⁺ (equivalent to the reduction of 1 μmol NADP⁺ per minute) (1).

Extraneous activities: 6-PGDH, PGluM each 0.01 %; hexokinase max. 0.02 %; glutathione reductase max. 0.05 %; PGI max. 0.002 %; creatine kinase max. 0.001 %.

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. Vol. **2**, p. 202-3

Cat.No.	Size	EUR
22820.01	1 mg	37,00
22820.02	10 mg	263,00

■ Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]



DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (2).

References:

1. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
2. Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. Vol. **6**, 178-85
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) Vol. **IX**, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-321

Cat.No.	Size	EUR
22739.02	500 mg	69,00

Detergents:

see special chapter at p. 141

Glucose oxidase from *Aspergillus niger* min. 220 U/mg lyophil.

(GOD)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Glucose oxidase is used in the assay of D-glucose (1). Ca. 300 U/mg protein.

Unit definition: 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine (1).**Extraneous activities:** Amylase, saccharase and maltase less than 0.05 %; GOD/catalase min. 2000.**References:**

1. Kunst, A. et al. (1984) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 6, p. 178-85
2. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. (Tokyo) **73**, 199-206
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size	EUR
22778.01	100 mg	28,00
22778.02	500 mg	99,00

Glucose oxidase from *Aspergillus niger* min. 200 U/mg lyophil. (Low Catalase)

(GOD; β-D-glucose:oxygen 1-oxidoreductase)

EC 1.1.3.4 ♦ M_r ca. 160 000 ♦ CAS [9001-37-0]

DANGER

H334 ♦ EINECS 232-601-0 ♦ WGK 1L ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Ca. 350 U/mg protein

Application: Suitable for biosensor applications.**Structure:** A dimeric enzyme consisting of two identical polypeptides of approx. 80 kD which are disulphide-linked.

Each subunit contains 1 mole of FAD. The enzyme is glycosylated, containing approximately 12 % carbohydrate.

Isoelectric point: pH 4.6**pH optimum:** pH 5.5 with broad range 4 - 7**Inhibitors:** p-chloromercuribenzoate, heavy metal ions, hydroxylamine, hydrazine, sodium bisulphite.**Unit definition:** 1 U catalyzes the oxidation of 1 μmole glucose to glucuronic acid per minute at 25 °C, pH 7 coupled with peroxidase and o-dianisidine.**Extraneous activities:** Amylase, maltase and invertase less than 0.05 % (2).**Catalase:** less than 0.01 U/mg material**GOD/catalase:** min. 25 000**References:**

1. Tsuge, H. & Mitsuda, H. (1973) J. Biochem. **73**, 199-206
2. Kunst, A. et al. (1984) in Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd ed. vol. 6, 178-85
3. Pazur, J.H. (1966) in Methods in Enzymology (Colowick, S.P. & Kaplan, N.O., eds.) vol. IX, 82-7
4. O'Malley, J.J. & Weaver, J.L. (1972) Biochemistry **11**, 3527-32

Cat.No.	Size	EUR
22780.01	100 mg	38,00
22780.02	500 mg	155,00

Glutamate dehydrogenase from bovine liver ca. 100 U/mg protein solution

(L-Glutamate: NAD(P)⁺ oxidoreductase (deaminating))EC 1.4.1.3 ♦ M_r ca. 350 000

DANGER

H334 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For the determination of L-glutamate, ammonia and 2-oxoglutaric acid (1, 2). Suitable for urea determination in conjunction with urease (cat. no. 37799). In 50 % glycerol.

25 mg correspond to approx. 1 ml, 100 mg correspond to approx. 4 ml.

Unit definition: 1 U catalyzes the reductive amination of 1 μmole 2-oxoglutarate per minute at 25 °C, pH 7.3 in the presence of ADP.**Activity in other units:** ca. 40 U/mg protein (1 U causes the transformation of 1 μmole 2-oxoglutarate per minute at 25 °C and pH 7.3 under assay conditions not containing ADP).**Extraneous activities:** LDH, MDH each max. 0.01 %; Ammonium ions less than 0.001 μmole per unit.**References:**

1. Schmidt, E. & F.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. Vol. 3, p. 216-27
2. Lund, P. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. 8, p. 357-63

Cat.No.	Size	EUR
22904.01	25 mg	28,00
22904.02	100 mg	83,00

Hyaluronidase from ovine testes min. 1000 U/mg lyophil.

EC 3.2.1.35 ♦ M_r ca. 55 000 ♦ CAS [37326-33-3]

DANGER

H334 ♦ EINECS 253-464-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Unit definition: 1 U produces the same turbidity reduction in a mixture of hyaluronic acid and albumin as 1 I.U. (International Unit) of a standard hyaluronidase preparation (1).**References:**

1. Mathews, M.B. (1966) Methods Enzymol. **8**, 654-62

Cat.No.	Size	EUR
25118.01	50 mg	21,00
25118.02	500 mg	139,00

Lactate dehydrogenase from porcine heart min. 300 U/mg protein 2xcryst. suspension

(L-LDH; Lactate; NAD⁺ oxidoreductase)EC 1.1.1.27 ♦ M_r ca. 140 000

DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Highly purified suspension of 2x cryst. material in 70 % saturated ammonium sulphate, pH approx. 7.2.

Preparation contains predominantly isoenzymes LDH 1 and 2. LDH is used for the determination of lactate (1) and in coupled systems for detection of biological metabolites.

Unit definition: 1 U catalyzes the reduction of 1 μmole of pyruvate to L-lactate per minute at 25 °C, pH 7.0 in the presence of NADH (oxidation of 1 μmole NADH) (2).**Extraneous activities:** PK, GPT, each max. 0.01 %; MDH max. 0.05 %**References:**

1. Wahlefeld, A.W. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 3, p. 126-33
2. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed., vol. 2, p. 232-3

Cat.No.	Size	EUR
27415.01	25 mg	27,00
27415.02	100 mg	77,00

■ Lysozyme from chicken egg white

min. 100 000 units/mg cryst.

(Muramidase; mucopolysaccharide-glycohydrolase; mucopolysaccharide N-acetyl-muramoylhydrolase)

EC 3.2.1.17 ♦ M_r ca. 14 400 ♦ CAS [12650-88-3]



DANGER

H334 ♦ EINECS 235-747-3 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Crystalline powder in hydrochloride form. Lysozyme hydrolyzes the β 1 → 4 linkages of the murein between N-acetylmuramic acid and N-acetyl-D-glucosamin, and degrades the heteroglycan chain to disaccharides. This reaction leads to cell lysis in most grampositive bacteria e.g. *Micrococcus luteus*. Lysis can be prevented if the reaction is performed in an isotonic sucrose medium. Under these assay conditions protoplasts are produced which no longer have a cell wall. The lysis of *Micrococcus luteus* cells is used for the activity testing of lysozyme. In gramnegative bacteria a compact lipopolysaccharide layer on the exposed murein sacculus efficiently shields them from lysozyme digestion. Only when the stabilizing Ca²⁺ ions are removed by treatment with e.g. EDTA, the murein becomes susceptible to lysozyme. Suitable for hydrolysis of bacterial cell walls and of proteoglycans (1, 2, 4).

Unit definition: 1 unit catalyzes a decrease in absorption at 450 nm of 0.001 per minute at 25 °C, pH 7.0, in a suspension of *Micrococcus luteus* cells (reaction volume 3 ml, light path 1 cm) (3).

Isoelectric point: 10.5 - 11.0

Optimum pH: 9.2

References:

1. Imoto, T. et al. (1972) The Enzymes **VII**, 3rd Ed. (Boyer, P.D., ed.) Acad. Press N.Y. 666-70
2. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (1.22, 1.34, 1.36, 1.38, 17.38, 1.29, B.17)
3. Shugar, D. (1952) Biochim. Biophys. Acta **8**, 302-9
4. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School

Cat.No.	Size	EUR
28262.02	2,5 g	28,00
28262.03	10 g	73,00
28262.04	50 g	286,00

■ Macerozyme R-10 from *Rhizopus sp.* lyophil.

(«Macerating Enzyme»; «Cell Separating Enzyme»)

EC 3.2.1.15 ♦ CAS [9032-75-1]



DANGER

H334 ♦ EINECS 232-885-6 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Macerozyme R-10 is suitable for the isolation of plant cells, and can be used in combination with cellulase «Onozuka R-10» (cat. no. 16419) (1, 2) and with Cellulase «Onozuka RS» (cat. no. 16420).

Activities: Pectinase ca. 0.5 U/mg

Unit definition: 1 U catalyzes the liberation of 1 μmole of reducing groups from pectic acid per minute at 25 °C, pH 4.5 calculated as galacturonic acid. Reducing groups determined with alkaline copper reagent (2).

Hemicellulase: ca. 0.25 U/mg

Unit definition: 1 U is equivalent to 1 μmole of reducing groups released from beechwood xylan per hour at 37 °C, pH 5.5, calculated as xylose.

Cellulase: ca. 0.1 U/mg

Unit definition: 1 U catalyzes the liberation of 1 μmole glucose from sodium carboxymethyl cellulose per minute at 40 °C, pH 4.5; glucose determined with alkaline copper reagent (3).

pH-optimum: 3.5 - 7.0

Temperature optimum: 40 - 50 °C.

References:

1. Yamada, Y. et al. (1972) Agr. Biol. Chem. **36**, 1055-9
2. Barraclough, R. & Ellis, R.J. (1979) Eur. J. Biochem. **94**, 165-77
3. Okada, G. (1988) Methods Enzymol. Vol. **160**, 259-63

Cat.No.	Size	EUR
28302.02	2,5 g	43,00
28302.03	10 g	125,00
28302.04	50 g	475,00

■ Malate dehydrogenase from porcine heart

mitochondria min. 1500 U/mg protein suspension

(MDH)

EC 1.1.1.37 ♦ M_r ca. 70 000



DANGER

H334 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

A highly purified suspension in 80 % saturated ammonium sulfate. Suitable for GOT determination in serum.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the reduction of 1 μmole oxaloacetate to malate (oxidation of 1 μmole NADH) per minute at 25 °C, pH 7.4 (1).

Extraneous activities: GPT, LDH, GOT, GLDH, CK and fumarase less than 0.003 %.

References:

1. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed. vol. **2**, p. 246-7

Cat.No.	Size	EUR
28338.01	5 mg	27,00
28338.02	25 mg	90,00

■ Neutral Protease NB from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER

H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦

EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Largely free of collagenolytic activity.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB is used in combination with purified Collagenase NB 1 Premium Grade (cat. no. 17455) as well as Collagenase NB 4 Standard Grade (cat. no. 17454) or Collagenase NB 8 Broad Range (cat. no. 17456).

For research use only. If cells are intended for transplantation into humans, Neutral Protease NB GMP Grade (cat. no. 30303) is recommended.

Unit definition: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30301.11	50 DMC-U	114,00
30301.12	100 DMC-U	165,00

■ Neutral Protease NB GMP Grade from *Clostridium histolyticum*

M_r ca. 34 000 ♦ CAS [9001-92-7]



DANGER
H315-H317-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-642-4 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C *

Contains chromatographically purified neutral protease.

Vial contains not less than 100 DMC U of neutral protease.

Neutral protease activity (DMC): ≥ 0.50 U/mg

Endotoxin: ≤ 100 EU/mg (Ph. Eur.)

Largely free of collagenolytic activity.

Microbiological examination: Total aerobic microbial count (TAMC), total combined yeast/moulds count (TYMC), absence of *Clostridia*, abnormal toxicity (general safety test; Ph. Eur.).

Manufactured according to EU GMP guidelines.

Metalloprotease suitable for tissue dissociation applications. For cell isolation Neutral Protease NB GMP Grade is used in combination with purified Collagenase NB 1 GMP Grade (cat. no. 17452) or Collagenase NB 6 GMP Grade (cat. no. 17458) for applications which have to meet GMP requirements like tissue engineering and transplantation into humans.

Unit definition:

Neutral Protease: 1 DMC Unit catalyzes the cleavage of 1 μmole peptide bond from dimethylcasein per minute at 25 °C, pH 7.0, expressed in terms of newly formed terminal amino groups, determined with TNBS (1).

Endotoxin: Ph. Eur. (1 Endotoxin Unit is equal to 1 International Unit of a WHO approved reference standard endotoxin (RSE)).

References:

1. Lin, Y.-C. et al. (1969) J. Biol. Chem. **244**, 789-93.

Cat.No.	Size	EUR
30303.01	≥ 100 DMC-U	inquire

■ Pancreatin NB from porcine pancreas

CAS [8049-47-6]



DANGER
H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦
WGK 1L ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Pancreatin NB is derived from porcine pancreas of known origin. It is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: ≥ 80 000 Ph. Eur. U/g

Amylolytic activity: ≥ 60 000 Ph. Eur. U/g

Proteolytic activity: ≥ 3000 Ph. Eur. U/g

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.)

The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.)

The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31442.01	100 g	64,00
31442.02	250 g	142,00

■ Pancreatin NB GMP Grade from porcine pancreas

CAS [8049-47-6]



DANGER
H315-H317-H319-H334-H335 ♦ EINECS 232-468-9 ♦
WGK 1L ♦ HS 35079090

Pancreatin NB GMP Grade is derived from porcine pancreas of known origin. It meets the requirements of the European Pharmacopoeia monograph for pancreas powder and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). Pancreatin is a mixture of digestive enzymes and contains lipolytic, amylolytic and proteolytic activities.

Specification:

Lipolytic activity: ≥ 80 000 Ph. Eur. U/g

Amylolytic activity: ≥ 60 000 Ph. Eur. U/g

Proteolytic activity: ≥ 3 000 Ph. Eur. U/g

Loss on drying: ≤ 3.0 %

Fat content: ≤ 3.0 %

Microbiological examination:

Total aerobic microbial count (TAMC): ≤ 10⁴ CFU/g

Total yeast and mould count (TYMC): ≤ 10² CFU/g

Absence of *Escherichia coli*: must comply

Absence of *Salmonella*: must comply

Unit definitions:

Lipolytic Activity (Ph. Eur.)

The lipolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of olive oil emulsion with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions. The test is carried out under nitrogen.

Amylolytic Activity (Ph. Eur.) The amylolytic activity is determined by comparing the rate at which a suspension of pancreas powder hydrolyses a substrate of starch solution with the rate at which a suspension of pancreas powder (amylase and lipase) BRP hydrolyses the same substrate under the same conditions.

Proteolytic Activity (Ph. Eur.) The total proteolytic activity of pancreas powder is determined by comparing the quantity of peptides non-precipitable by a 50 g/l solution of trichloroacetic acid R released per minute from a substrate of casein solution with the quantity of such peptides released by pancreas powder (protease) BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31445.01	250 g	inquire

■ Pepsin NB Technical Grade

from porcine gastric mucosa granulate, vacuum dried

(Pepsin A)

EC 3.4.23.1 ♦ M_r ca. 35 000 ♦ CAS [9001-75-6]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-008-00-6 ♦
EINECS 232-629-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Pepsin NB Technical Grade is derived from porcine gastric mucosa. It contains sodium benzoate (≤ 0.46 % (w/w)). Pepsin is a protease with a broad specificity and cleaves preferably peptide bonds between hydrophobic and aromatic amino acids and is active in acid medium. Pepsin NB Technical Grade is suitable for applications such as production of F(ab')₂ fragments from antibodies.

Specification:

Proteinase activity: ≥ 0.5 Ph. Eur. U/mg

Unit definition: Proteinase activity (Ph. Eur.)

The activity of pepsin powder is determined by comparing the quantity of peptides, non-precipitable by trichloroacetic acid solution R and assayed using the phosphomolybdotungstic reagent R, which are released per minute from a substrate of haemoglobin solution R, with the quantity of such peptides released by pepsin powder BRP from the same substrate in the same conditions.

Cat.No.	Size	EUR
31825.01	100 g	45,00

■ Pepsin porcine ca. 15 milliAnson units/mg 2xcryst. lyophil.

(Pepsin A)

EC 3.4.23.1 ♦ M_r ca. 36 000 ♦ CAS [9001-75-6]

DANGER

H315-H319-H334-H335 ♦ EG-Index 647-008-00-6 ♦
EINECS 232-629-3 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

For the degradation of proteins. Pepsin preferentially hydrolyzes those peptide linkages which involve the amino group contributed by the aromatic amino acids phenylalanine, tyrosine and tryptophan.

Unit definition: 1 milliAnson-unit is equivalent to 1 μmole of Folin-positive amino acids calculated as tyrosine, released from denatured hemoglobin per minute at 37 °C, pH 2.0.

Activity in other units: ca. 0.015 PU^{hb}/mg („Pepsin-Unit“ according to Anson (1, 2). Expressed in millimole tyrosine, therefore 1 PU^{hb} = 1000 milliAnson-units.)

References:

1. Anson, M.L. (1938) J. Gen. Physiol. **22**, 79-98
2. Ryle, A.P. (1984) Methods of Enzymatic Analysis, (Bergmeyer, H.U. ed.) 3rd Ed. vol. **5**, 223-38
3. Northrop, J.H. et al. (1948) Crystalline Enzymes 2nd ed., Columbia University Press, 305-8

Cat.No.	Size	EUR
31820.01	1 g	35,00
31820.02	5 g	137,00

■ Peroxidase from horseradish min. 1000 U/mg lyophil.

(POD; HRP; Donor: hydrogen-peroxide oxidoreductase)

EC 1.11.1.7 ♦ M_r ca. 40 000 ♦ CAS [9003-99-0]

DANGER

H334 ♦ EINECS 232-668-6 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For the determination of peroxide (1). Used as an indicator enzyme in reactions where peroxide is produced (2). For labelling antibodies in ELISA (3, 4). RZ (= A 403/A 275) = 3.0.

Unit definition: 1 U catalyzes the decomposition of 1 μmole hydrogen peroxide per minute at 25 °C, pH 7.0; reaction coupled with phenol-aminoantipyrine (5).

Activity in other units: min. 250 purpurogallin units/mg (1 purpurogallin unit catalyzes the oxidation of 1 mg pyrogallol to purpurogallin in 20 seconds at 20 °C and pH 6.0. The purpurogallin is extracted and determined spectrophotometrically at 420 nm (6).

1 mg purpurogallin requires 13.5 μmole peroxide, 1 purpurogallin unit corresponds to the decomposition of 12 μmoles peroxide at 25 °C.

References:

1. Meitattini, F. (1985) Methods of Enzymatic Analysis, (Bergmeyer, H.U., ed.) 3rd Ed. vol. **7**, p. 566-71
2. Bergmeyer, H.U. (1983) Methods of Enzymatic Analysis, 3rd Ed. vol. **2**, p. 267-8
3. Johnson Jr., R.B. (1980) J. Immunoassay **1**, 27-37
4. Harlow & Lane (1988) Antibodies, Cold Spring Harbor Laboratory Press, p. 349
5. Gallati, H. (1977) J. Clin. Chem. Clin. Biochem. **15**, 699-703
6. Polis, B.D. & Shmukler, H.W. (1963) J. Biol. Chem. **201**, 457-500

Cat.No.	Size	EUR
31941.02	10 mg	31,00
31941.03	100 mg	220,00

■ Pronase E from *Streptomyces griseus* min. 6.0 DMC-U/mg lyophil.

(Streptomyces griseus neutral proteinase; Actinase E)

CAS [9036-06-0]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 232-909-5 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

For structural analysis of proteins (1, 2). Suitable for preparation of bacteriophage lambda DNA (3).

Unit definition: 1 DMC-U (1U) is that amount of enzymatic activity which catalyzes the cleavage of 1 μ-equivalent peptide bond from dimethyl casein per minute at 25 °C, pH 7.5, expressed in terms of the appearance of new terminal amino groups (4).

Activity in other units: ca. 1 000 000 PU-units/g (casein substrate; 40 °C, pH 7.4 (5), ca. 20 000 PUK-units/g (casein substrate, 40 °C, pH 7.5).

Pronase = registered trademark of Calbiochem-Novabiochem Corp.

References:

1. Jehanli, A. & Hough, D. (1985) Mol. Immunol. **22**, 557-66
2. Tsugita, A. & Akabori, S. (1959) J. Biochem. (Tokyo) **46**, 695-704
3. Maniatis, T. et al. (1982) Molecular Cloning - a Laboratory Manual. Cold Spring, Harbor Laboratory, p. 85
4. Lin, Y. et al. (1969) J. Biol. Chem. **244**, 789-93
5. Nomoto, M. & Narashi, Y. (1959) J. Biochem. (Tokyo) **46**, 653-67

Cat.No.	Size	EUR
33635.01	250 mg	26,00
33635.02	1 g	67,00
33635.03	5 g	298,00

■ Proteinase K from *Tritirachium album*

solution ≥ 20 mg/ml, ≥ 600 U/ml

EC 3.4.21.14 ♦ M_r M_r 28.000

DANGER

H334 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Serine protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition: 1 mAnson Unit is defined as the amount of enzyme that liberates Folin-positive amino acids and peptides, corresponding to 1 μmole tyrosine per minute at 37 °C and pH 7.4 using urea-denatured hemoglobin as substrate (4)

Activity(U/ml): ≥ 600

Inhibitors for Proteinase: AEBSF (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33755.01	1 ml	30,00
33755.02	5 ml	80,00
33755.03	10 ml	145,00

For Amino Acids cell culture grade
see special chapter at p. 310

■ Proteinase K from *Tritirachium album* min. 8 DMC-U/mg lyophil.

EC 3.4.21.14 ♦ M_r ca. 28 000 ♦ CAS [39450-01-6]



DANGER

H315-H319-H334-H335 ♦ EG-Index 647-014-00-9 ♦
EINECS 254-457-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Serin protease with very broad range of action: cleaves peptide bonds at the carboxylic side of aliphatic, aromatic, and hydrophobic amino acids. Suitable for the isolation of DNA and RNA (1, 3).

Unit definition 1 DMC-unit catalyzes the hydrolysis of 1 μmole dimethyl casein per minute at 25 °C, pH 7.0; the liberated amino groups are determined with 2,4,6-trinitrobenzene sulfonic acid (2).

Activities in other units ca. 30 milliAnson-units.

Inhibitors for Proteinase: AEBSE (cat. no. 12745), (PEFABLOC® SC (cat.no. 31682), PMSF (cat. no. 32395) and Diisopropylfluorophosphate (cat. no. 77205).

Extraneous activities: DNases and RNases not detectable.

References:

1. Ebeling, W. et al.(1974) Eur. J. Biochem. **47**, 91-7
2. Lin, Y. et al.(1969) J. Biol. Chem. **244**, 789-93
3. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (B.16, 1.61)
4. Anson, M.L. (1938) J. Gen. Physiol. **33**, 79-89

Cat.No.	Size	EUR
33752.01	25 mg	27,00
33752.02	100 mg	62,00
33752.03	500 mg	182,00

■ Ribonuclease A from bovine pancreas min. 80 Kunitz units/mg lyophil.

(Pancreatic RNase; ribonuclease I; ribonuclease 3-pyrimidino-oligo-nucleotidohydrolase)

EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

An endonuclease which specifically attacks pyrimidine sites (Py/pN) at the 3'-phosphate group. This preparation is salt-free, protease-free and chromatographically homogeneous.

RNase A content: min. 90 % by ion exchange chromatography. DNase not detected.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0

References:

1. Kunitz, M. (1946) J. Biol. Chem. **164**, 563-8
2. Krupp, G. & Gross, H.J. (1979) Nucl. Acids Res. **6**, 3481-90
3. Levy, C.C. & Kaepetzky, T.P. (1980) J. Biol. Chem. **255**, 2153-9
4. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (5.81)
5. Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (3.13.1, 5.5.2, 4.7.3, 7.3.8)

Cat.No.	Size	EUR
34388.01	50 mg	35,00
34388.02	250 mg	125,00

■ Ribonuclease A from bovine pancreas min. 70 Kunitz units/mg lyophil.

EC 3.1.27.5 ♦ M_r ca. 13 700 ♦ CAS [9001-99-4]



DANGER

H334 ♦ EINECS 232-646-6 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

RNase A content approx. 70 %.

DNase-free RNase: To prepare RNase A free of DNase dissolve RNase A in TE-buffer at 1 mg/ml and boil 10 to 30 minutes. Store aliquots at -20 °C to prevent microbial growth.

Unit definition: 1 unit is that amount of activity which is capable of causing within 1 minute a decrease in absorbance at 300 nm equivalent to the maximum possible change in a 0.05 % solution of yeast RNA at 25 °C, pH 5.0.

Cat.No.	Size	EUR
34390.02	100 mg	23,00
34390.03	1 g	152,00

■ Ribonuclease H recombinant from *E.coli*, 5 U/μl

EC 3.1.4.34 ♦ M_r 18 400 ♦ CAS [9050-76-4]

HS 38220000

Storage temperature -15 °C to -25 °C *

Solution in 50 mM Tris-HCl (pH 7.4), 100 mM NaCl, 0.1 mM EDTA, 1 mM 2-mercaptoethanol, 0.1 % Triton® X-100 and 50 % glycerol. RNases, Nickases, Exo- and Endonucleases not detected.

Supplied with 10x Assay Buffer: 100 mM Tris-HCl (pH 7.4), 1 M NaCl, 100 mM MgCl₂, 10 mM EDTA and 10 mM dithiothreitol.

Ribonuclease H (RNase H) is an endoribonuclease that specifically hydrolyzes the phosphodiester bonds of RNA which is hybridized to DNA. The enzyme does not digest single or double stranded DNA.

Unit definition: One unit is defined as the amount of enzyme that will hydrolyze 1 nmole of the RNA in [³H]-labeled poly (rA) I poly (dT), to acid-soluble ribonucleotides in a total reaction volume of 50 μl in 20 minutes at 37 °C.

Cat.No.	Size	EUR
39719.01	100 U	85,00

■ Salt Active Nuclease

HS 35079090

Storage temperature -15 °C to -25 °C **

Supplied as solution in 25 mM Tris-HCl pH 7.5, 5 mM MgCl₂, 0.5 M NaCl, 0.01 % Triton X[®]-100, 50 % (v/v) glycerol.

Salt Active Nuclease is a highly active non-specific endonuclease from a marine bacterium that cleaves both DNA and RNA. It digests DNA versus RNA in a 10:1 ratio.

Salt Active Nuclease has optimum activity at 0.5 M NaCl, is active in the pH range of 7 to 10 and low temperatures, which makes the enzyme ideal for use in removal of nucleic acids from cell extracts and proteins samples. It will remove contaminating nucleic acids in a traditional protein buffer system. That guarantees the full protection of proteins while the nucleic acids are fully removed.

- Non specific endonuclease
- Optimum activity at high salt concentration (0.5 M NaCl)
- Active at low temperatures (20 % at 6 °C)
- Broad pH range
- Temperature stable

Specific activity 400.000 Units/mg
pH optimum pH 9
Salt optimum 0.5 M NaCl

Unit definition: One unit is defined as an increase in absorbance at 260 nm of 0.001 per minute at 37 °C, using 50 μg/ml calf thymus DNA in a buffer consisting of 25 mM Tris-HCl, pH 8.5 (25 °C), 5 mM MgCl₂, 500 mM NaCl.

Cat.No.	Size	EUR
18541.01	5.000 U	92,00
18541.02	25.000 U	390,00

■ Superoxide dismutase from bovine erythrocytes min. 3000 units/mg lyophil.

(CuZnSOD; Erythrocuprein; Superoxide: superoxide oxidoreductase)

EC 1.15.1.1 ♦ M_r ca. 32 000 ♦ CAS [9054-89-1]



DANGER

H334 ♦ EINECS 232-943-0 ♦ WGK 1 ♦ HS 35079090
Storage temperature -15 °C to -25 °C

Scavenger of highly toxic radicals in the culture of anaerobes (1).

Unit definition: 1 unit catalyzes a 50 % inhibition in the rate of reduction of cytochrome C at 25 °C, pH 7.8 (2).

Extraneous activities: carbonic anhydrase max. 0.01 %

References:

1. Bannister, J.V. et al. (1987) CRC Critical Reviews in Biochemistry **22**, (2), 111-80
2. McCord, J.M. & Fridovich, I. (1969) J. Biol. Chem. **244**, 6049-55

Cat.No.	Size	EUR
35700.03	100.000 U	145,00

■ Thrombin from bovine plasma min. 1000 units/mg protein lyophil.

(Coagulation Factor IIa)

EC 3.4.21.5 ♦ M_r ca. 37 000 ♦ CAS [9002-04-4]**WARNING**H315-H319-H335 ♦ EINECS 232-648-7 ♦ WGK 1 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

Serine protease that activates factor XIII and converts fibrinogen to fibrin by selectively cleaving Arg-Gly bonds.

Suitable for removal of a tag, e.g. GST-tag, from a recombinant fusion protein containing an accessible thrombin recognition sequence.

Unit definition: 1 NIH unit clots a standard fibrinogen solution in 15 sec. at 37 °C (1).

Extraneous activities: very low fibrinolytic activity

References:1. Baughman, D. J. (1970) Methods Enzymol. **19**, 145-57

Cat.No.	Size	EUR
36402.01	250 U	25,00
36402.02	1.000 U	69,00
36402.03	5.000 U	270,00

■ Trypsin 1:250 from bovine pancreas lyophil.

3.4.21.4 ♦ CAS [9002-07-7]

**DANGER**H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

USP. Serin protease mixture suitable for cell culture. Contains chymotrypsin and non-proteolytic activities. Trypsin 1:250 is a special blend of enzymes designed to maintain maximum cell viability during gentle dissociation.

Customary concentration for use: 250 mg/100 ml, pH 7 – 8.

Trypsin assay: 250 NF/USP U/mg

Total aerobic count plate none detectable

Moulds and yeasts <15 /g

Bacterial count

Salmonella, *Staph. aureus*, *Ps.*

aeruginosa,

Enterococcus sp.

Absent in 10 g material

Unit definition: That amount of enzyme that causes hydrolysis of BAEE (benzoylarginine ethyl ester) such that the increase of light absorbance at 253 nm is 0.003 per minute.

Cat.No.	Size	EUR
37289.01	25 g	55,00
37289.02	100 g	158,00

■ Trypsin from porcine pancreas

ca. 60 U/mg 2 x cryst. lyophil. salt-free

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]**DANGER**H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Unit definition: 1 U catalyzes the hydrolysis of 1 μmole N-α-benzoyl-L-arginine ethyl ester (BAEE) per minute at 25 °C, pH 8.0.

Extraneous activities: max. 0.25 % chymotrypsin.

Substrates and Inhibitors for Trypsin: see cat.no. 37260

Cat.No.	Size	EUR
37291.02	250 mg	25,00
37291.03	1 g	71,00

■ Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA

WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C *

Suitable for efficient and gentle detachment of adherent cells from culture surfaces, as well as for tissue digestion.

Trypsin: 0.5 mg/ml (0.05 %)

EDTA: 0.22 mg/ml (0.02 %)

Solvent: PBS, without Ca²⁺ and Mg²⁺

Endotoxin: ≤10 EU/ml

SERVA Trypsin NB Cell Culture Grade, 0.05 % solution with EDTA is a solution containing trypsin and EDTA in phosphate buffered saline (PBS) without Ca²⁺ and Mg²⁺. It is a clear and colourless solution that is 0.2 μm filtered and thus ready to use. Each lot is tested for pH-value, osmolality, and sterility. Efficient detachment and high cell viability could be shown for several adherent cell types.

The trypsin powder is derived from porcine pancreas and tested for porcine parvovirus (PPV), mycoplasma and endotoxin. SERVA Trypsin NB Cell Culture Grade complies to trypsin 1:250.

Cat.No.	Size	EUR
37297.01	100 ml	9,30
37297.02	10 x 100 ml	88,00

■ Trypsin NB from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]**DANGER**H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature +2 °C to +8 °C

Trypsin NB is derived from porcine pancreas of known origin. It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline. Trypsin NB is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≥ 40 μkat/g (Ph. Eur.)

Microbiological examination:

Total aerobic microbial count (TAMC): status

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions.

The activity is stated in microkatal; 1 μkat hydrolyses 1 μmol substrate per second. 1 μkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size	EUR
37294.01	10 g	24,00
37294.02	50 g	62,00
37294.03	250 g	239,00

■ Trypsin NB GMP Grade from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Trypsin NB is derived from porcine pancreas of known origin and is manufactured according to EU guidelines to Good Manufacturing Practice (GMP). It contains also chymotrypsin, elastase and non-proteolytic activities. Trypsin is a serin protease used for protein digestion. It cleaves peptide bonds preferably at the carboxyl side of the amino acids lysine or arginine, except when either is followed by proline. Trypsin NB GMP Grade is not suitable for detachment of cells for subculture, please refer to Cat. No. 37297.

Specification:

Tryptic activity: ≤ 40 µkat/g (Ph. Eur.)

Loss on drying: ≤ 5.0 %

Microbiological examination:

Total aerobic microbial count (TAMC): ≤ 10⁴ CFU/g

Total yeast and mould count (TYMC): ≤ 10² CFU/g

Absence of *Escherichia coli*: must comply

Absence of *Salmonella*: must comply

Unit definition: Trypsin activity (Ph. Eur.)

The activity of trypsin is determined by comparing the rate at which it hydrolyses benzoylarginine ethyl ester hydrochloride R with the rate at which trypsin BRP hydrolyses the same substrate in the same conditions. The activity is stated in microkatal; 1 µkat hydrolyses 1 µmol substrate per second. 1 µkat (Ph. Eur.) is equivalent to 60 FIP U.

Cat.No.	Size	EUR
37296.02	5 kg	inquire

■ Trypsin NB Premium Grade, MS approved from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Approved for use in in-gel digestion and mass spectrometry analysis. Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Premium Grade, MS approved is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues of trypsin results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Premium Grade, MS approved is purified by chromatography. No chymotryptic activity is detectable. Every lot is approved for use in in-gel digestion and mass spectrometry analysis. Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37284.01	4 x 25 µg	78,00

■ Trypsin NB Sequencing Grade, modified from porcine pancreas

EC 3.4.21.4 ♦ M_r ca. 24 000 ♦ CAS [9002-07-7]



DANGER
H315-H319-H334-H335 ♦ EG-Index 647-010-00-7 ♦
EINECS 232-650-8 ♦ WGK 1 ♦ HS 35079090

Storage temperature -15 °C to -25 °C

Modified by reductive methylation, no chymotryptic activity detectable. Specificity verified by digestion of oxidized B-chain of insulin.

Trypsin NB Sequencing Grade, modified, is suitable for digestion of proteins for mass spectrometry analysis. Reductive methylation of the lysine residues results in a stable product that is extremely resistant to autolytic degradation. Trypsin NB Sequencing Grade, modified, is purified by chromatography. No chymotryptic activity is detectable.

Each package contains also a Trypsin Peptide (TP) Standard allowing internal calibration for enhancing mass accuracy. The TP standard provides tryptic activity to generate masses m/z 842 and 2211.

Cat.No.	Size	EUR
37283.01	4 x 25 µg	59,00

■ Urease from jack bean min. 220 U/mg lyophil.

(Urea amidohydrolase)

EC 3.5.1.5 ♦ M_r ca. 545 000 ♦ CAS [9002-13-5]



DANGER
H334 ♦ EINECS 232-656-0 ♦ HS 35079090
Storage temperature +2 °C to +8 °C

For the determination of urea (1).

Unit definition: 1 U catalyzes the formation of 1 µmole ammonia per minute at 25 °C, pH 8.0 from urea, determined in a coupled reaction with GLDH (2).

Activity in other units: If the unit of activity is defined in terms of 1 µmole urea decomposed per minute, this preparation would contain at least 90 units/mg.

References:

1. Kersch, L. & Ziegenhorn, J. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. Vol. 8, p. 444-53
2. Kaltwasser, H. & Schlegel, H.G. (1966) Anal. Biochem. **16**, 132-8

Cat.No.	Size	EUR
37799.01	100 mg	22,00
37799.02	250 mg	46,00
37799.03	1 g	150,00

■ Xanthine oxidase from buttermilk min. 0.9 U/mg protein suspension

(XOD; Xanthine:oxygen oxidoreductase)

EC 1.1.3.22 ♦ M_r ca. 283 000



DANGER
H334 ♦ HS 35079090
Storage temperature +2 °C to +8 °C *

For the determination of xanthine and hypoxanthine (1), adenosine, guanosine (2) and total purines (3). Chromatographically purified; ca. 10 mg/ml in 60 % saturated ammonium sulfate containing sodium salicylate and EDTA.

5 mg correspond to approx. 0.5 ml, 25 mg correspond to approx. 2.5 ml.

Unit definition: 1 U catalyzes the oxidation of 1 µmole xanthine per minute at 25 °C, pH 7.5, measured by the increase in absorbance in 290 nm (4).

References:

1. Jensen, M.H. & Joergensen, S. (1985) Methods of Enzymatic Analysis (Bergmeyer, H.U., ed.) 3rd Ed. vol. 7, p. 125-33
2. Heinz, F. & Reckel, S. (1985) loc. cit. p. 92-100
3. Jensen, M.H. (1985) loc. cit. p. 101-10
4. Kalckar, H.M. (1947) J. Biol. Chem. **167**, 429-43

Cat.No.	Size	EUR
38418.01	5 mg	22,00
38418.02	25 mg	84,00

Coenzymes, Cofactors, Nucleotides

■ Adenosine-5'-diphosphate-Na₂-salt research grade

(ADP)

C₁₀H₁₃N₅O₁₀P₂·Na₂ ♦ M_r 471.2 ♦ CAS [16178-48-6]

EINECS 240-314-7 ♦ WGK 1 ♦ HS 29389090

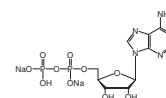
Storage temperature -15 °C to -25 °C

From yeast ribonucleic acid.

Assay (HPLC) min. 94.0 %

ATP max. 1.0 %

Water (KF) max. 7.0 %



Cat.No.	Size	EUR
10800.02	1 g	39,00
10800.03	5 g	149,00

■ Adenosine-5'-phosphate-Na₂-salt analytical grade

(AMP)

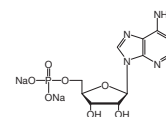
C₁₀H₁₂N₅O₇P·Na₂·7H₂O ♦ M_r 517.2 ♦ CAS [4578-31-8]

EINECS 224-961-2 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 99.0 %

Water (KF) max. 26.0 %



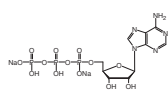
Cat.No.	Size	EUR
10883.01	5 g	35,00

■ **Adenosine-5'-triphosphate- Na_2 -salt** cryst. research grade

(ATP)
 $\text{C}_{10}\text{H}_{14}\text{N}_5\text{O}_{13}\text{P}_3\cdot\text{Na}_2$ ♦ M_r 551.1 ♦ CAS [987-65-5]

EINECS 213-579-1 ♦ WGK 1 ♦ HS 29389090
 Storage temperature -15 °C to -25 °C

Assay (HPLC) min. 98.0 %
 Water (KF) max. 8.0 %



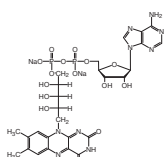
Cat.No.	Size	EUR
10920.01	1 g	13,50
10920.02	5 g	19,00
10920.03	25 g	66,00
10920.04	100 g	212,00

■ **Flavin adenine dinucleotide- Na -salt** pure

(FAD- Na)
 $\text{C}_{27}\text{H}_{31}\text{N}_9\text{O}_{15}\text{P}_2\cdot\text{Na}_2\cdot 2\text{H}_2\text{O}$ ♦ M_r 865.56 ♦
 CAS [84366-81-4]

EINECS 282-733-8 ♦ WGK 1 ♦ HS 29349990
 Storage temperature +2 °C to +8 °C

Assay (photometric, dried subst.) min. 95.0 %
 pH 1 % in water 6.2 ± 0.5
 Water max. 10.0 %



Cat.No.	Size	EUR
21490.02	100 mg	42,00

■ **L-Glutathione (oxidized form)** cryst. research grade

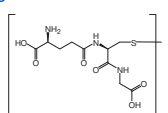
(GSSG)
 $\text{C}_{20}\text{H}_{32}\text{N}_6\text{O}_{12}\text{S}_2$ ♦ M_r 612.64 ♦ CAS [27025-41-8]

EINECS 248-170-7 ♦ WGK 1 ♦ HS 29309016
 Storage temperature +2 °C to +8 °C

Assay (HPLC) min. 98.0 %
 $[\alpha]$ 20 °C/D (c=4 in water) -106.0 ° to -96.0 °

References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60



Cat.No.	Size	EUR
23130.01	1 g	22,50
23130.02	5 g	79,00
23130.03	25 g	365,00

■ **L-Glutathione (reduced form)** cryst. research grade

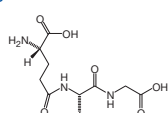
(GSH; γ -L-Glutamyl-L-cysteinylglycine)
 $\text{C}_{10}\text{H}_{17}\text{N}_3\text{O}_6\text{S}$ ♦ M_r 307.3 ♦ CAS [70-18-8]

EINECS 200-725-4 ♦ WGK 2L ♦ HS 29309016
 Storage temperature +2 °C to +8 °C

Assay (CE) min. 97.5 %
 MP 182 - 192 °C
 $[\alpha]$ 20 °D (c=4 in water) -15.5 ° to -17.5 °

References:

1. **Review:** Meister, A. & Anderson, M.E. (1983) Ann. Rev. Biochem. **52**, 711-60



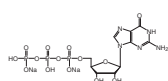
Cat.No.	Size	EUR
23150.02	5 g	20,00
23150.03	25 g	77,00
23150.04	100 g	260,00

■ **Guanosine-5'-triphosphate- Na_2 -salt** analytical grade

(GTP)
 $\text{C}_{10}\text{H}_{14}\text{N}_5\text{O}_{14}\text{P}_3\cdot\text{Na}_2\cdot 3\text{H}_2\text{O}$ ♦ M_r 567.2 (anhydrous) ♦
 CAS [56001-37-7]

EINECS 259-940-7 ♦ WGK 1 ♦ HS 29389090
 Storage temperature -15 °C to -25 °C *

Assay from ϵ 252 nm, pH 7 min. 96.0 %
 Water content max. 10.0 %



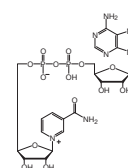
Cat.No.	Size	EUR
24321.02	100 mg	55,00
24321.03	250 mg	105,00

■ **β -Nicotinamide adenine dinucleotide** analytical grade

(NAD; DPN)
 $\text{C}_{21}\text{H}_{27}\text{N}_7\text{O}_{14}\text{P}_2$ ♦ M_r 663.43 ♦ CAS [53-84-9]

EINECS 200-184-4 ♦ WGK 1 ♦ HS 29349990
 Storage temperature +2 °C to +8 °C

Assay (enzym.) min. 97.5 %
 Assay from ϵ NAD 260 nm, pH 7 min. 98.0 %
 Water content (KF) max. 3.5 %



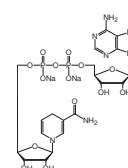
Cat.No.	Size	EUR
30311.02	1 g	23,00
30311.03	5 g	89,00
30311.04	25 g	385,00

■ **β -Nicotinamide adenine dinucleotide reduced- Na_2 -salt** research grade

(NADH; DPNH)
 $\text{C}_{21}\text{H}_{26}\text{N}_7\text{O}_{14}\text{P}_2\cdot\text{Na}_2$ ♦ M_r 709.4 ♦ CAS [606-68-8]

EINECS 210-123-3 ♦ WGK 1 ♦ HS 29349990
 Storage temperature -15 °C to -25 °C

Assay (NADH- Na_2 enzymatic) min. 98.0 %
 Assay (ϵ NADH 260 nm) min. 85.0 %
 Water (KF) max. 6.0 %



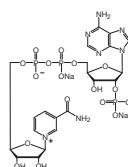
Cat.No.	Size	EUR
30312.01	250 mg	26,00
30312.02	1 g	69,00
30312.03	5 g	295,00

■ **β -Nicotinamide adenine dinucleotide phosphate- Na_2 -salt** research grade

(NADP; TPN)
 $\text{C}_{21}\text{H}_{26}\text{N}_7\text{O}_{17}\text{P}_3\cdot\text{Na}_2$ ♦ M_r 787.4 ♦ CAS [24292-60-2]

EINECS 246-129-8 ♦ WGK 1 ♦ HS 29349990
 Storage temperature -15 °C to -25 °C

Assay (enzymatic) min. 97.0 %
 Water (KF) max. 6.0 %



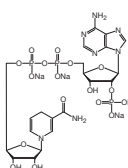
Cat.No.	Size	EUR
30315.02	100 mg	31,00
30315.03	250 mg	59,00
30315.04	1 g	195,00
30315.05	5 g	795,00

■ **β -Nicotinamide adenine dinucleotide phosphate reduced- Na_4 -salt** analytical grade

(NADPH; TPNH)
 $\text{C}_{21}\text{H}_{26}\text{N}_7\text{O}_{17}\text{P}_3\cdot\text{Na}_4$ ♦ M_r 833.4 ♦ CAS [2646-71-1]

EINECS 220-163-3 ♦ WGK 1 ♦ HS 29349990
 Storage temperature -15 °C to -25 °C

Assay (anhydrous) from ϵ NADPH 260 nm (ϵ = 15 000) min. 96.0 %
 Assay of NADP- Na_4 (enzymatic, 340 nm) min. 97.0 %
 Assay (HPLC) min. 95.0 %
 Water (KF) max. 6.0 %



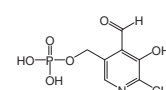
Cat.No.	Size	EUR
30316.01	25 mg	30,00
30316.02	100 mg	79,00
30316.03	500 mg	320,00

■ **Pyridoxal-5-phosphate** analytical grade

(Codecarboxylase; Pyridoxal-5-phosphoric acid)
 $\text{C}_8\text{H}_{10}\text{NO}_6\text{P}\cdot\text{H}_2\text{O}$ ♦ M_r 265.2 ♦ CAS [41468-25-1]

HS 29362500
 Storage temperature +2 °C to +8 °C

Assay (anhydrous, HPLC) 99.0 - 101.0 %
 Heavy metals (Pb) max. 10 ppm



Cat.No.	Size	EUR
33940.02	5 g	45,00
33940.03	25 g	145,00

■ Uridine-5'-triphosphate- Na_3 -salt research grade

(UTP)

$\text{C}_9\text{H}_{12}\text{N}_2\text{O}_{15}\text{P}_3\cdot\text{Na}_3\cdot 2\text{H}_2\text{O}$ $\diamond$ M_r 586.2 $\diamond$ CAS [19817-92-6]

EINECS 243-347-5 $\diamond$ HS 29199000

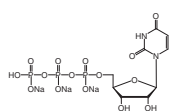
Storage temperature -15 °C to -25 °C

Assay (HPLC)

min. 91.0 %

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size	EUR
37960.01	250 mg	58,00
37960.02	1 g	190,00

Enzyme Substrates and Detection

■ Acetylthiocholine-iodide research grade

$\text{C}_7\text{H}_{16}\text{N}^+\text{OS}^-\text{I}^-$ $\diamond$ M_r 289.2 $\diamond$ CAS [1866-15-5]



DANGER

H301-H312 $\diamond$ GGVSE/ADR 6.1 III UN2811 $\diamond$ IATA 6.1 III UN2811 $\diamond$

EINECS 217-474-1 $\diamond$ WGK 3L $\diamond$ HS 29309099

Storage temperature +2 °C to +8 °C

Cholinesterase substrate (1). The liberated thiol group is estimated using 5,5'-dithiobis(2-nitrobenzoic acid) (2).

Assay (HPLC)

min. 98.0 %

References:

1. Ellman, G.L. et al. (1961) Biochem. Pharmacol. **7**, 88-95
2. Ellman, G. & Callaway, E. (1961) Nature **192**, 1216-7

Cat.No.	Size	EUR
10570.01	1 g	16,00
10570.02	5 g	44,00
10570.03	25 g	178,00

■ L-Ascorbic acid- Na -salt research grade

(Sodium-L-(+)-ascorbate)

$\text{C}_6\text{H}_7\text{O}_6\text{Na}$ $\diamond$ M_r 198.1 $\diamond$ CAS [134-03-2]

EINECS 205-126-1 $\diamond$ WGK 1 $\diamond$ HS 29362700

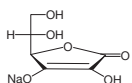
Ph. Eur.

Assay (titr.)

99.0 - 101.0 %

Heavy metals (Pb)

max. 10 ppm



Cat.No.	Size	EUR
14033.01	100 g	20,00
14033.02	500 g	54,00

■ 2,2'-Azinobis(3-ethylbenzthiazoline-6-sulfonic acid)- 2NH_4 -salt cryst. analytical grade

(ABTS)

$\text{C}_{18}\text{H}_{16}\text{N}_4\text{O}_6\text{S}_4\cdot 2\text{NH}_4$ $\diamond$ M_r 548.69 $\diamond$ CAS [30931-67-0]



WARNING

H315-H319-H335 $\diamond$ EINECS 250-396-6 $\diamond$ WGK 1 $\diamond$ HS 29342080

Chromogen for peroxidase in enzyme-linked immunoassay (ELISA) (1). For laccase and angiotensin I-converting enzyme assay (2).

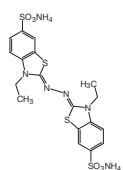
TLC:

one spot

References:

1. Groome, N.P. (1980) J. Clin. Chem. Clin. Biochem. **18**, 345-9
2. Shin, T. et al. (1987) Anal. Biochem. **166**, 380-8

Cat.No.	Size	EUR
14364.01	1 g	53,00



■ BCIP/NBT ready-to-use substrate

for immunohistochemistry and blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component substrate solution for detection of alkaline phosphatase in immunohistochemical, in situ hybridization and blotting procedures. A very fine blue-purple precipitate will be localized at sites of AP activity on tissue sections. Purple bands or dots will be visible at the sites of AP activity on membranes.

Contains a proprietary enhancer and a non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
15246.01	100 ml	57,00

■ $\text{N}\alpha$ -Benzoyl-L-arginine ethyl ester-HCl analytical grade

(BAEE)

$\text{C}_{15}\text{H}_{22}\text{N}_4\text{O}_3\cdot\text{HCl}$ $\diamond$ M_r 342.8 $\diamond$ CAS [2645-08-1]

EINECS 220-157-0 $\diamond$ WGK 1 $\diamond$ HS 29224985

Storage temperature +2 °C to +8 °C

Substrate for determination of trypsin (1). Papain substrate (2).

MP

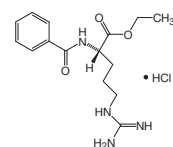
128 - 133 °C

$[\alpha]_D^{20}$ °C/D (c=2 in water)

-18 $\pm$ 2 °

References:

1. Smith, E.L. & Parker, M.J. (1958) J. Biol. Chem. **233**, 1387-91
2. Schwert, G.W. & Takenaka, Y. (1955) Biochim. Biophys. Acta **16**, 570-5



Cat.No.	Size	EUR
14600.02	5 g	55,00

■ 5-Bromo-4-chloro-3-indolyl-phosphate- Na_2 -salt

analytical grade

(5-Bromo-4-chloro-3-indolyl-phosphate- Na_2 -salt;

X-phos disodium salt)

$\text{C}_8\text{H}_4\text{BrClNO}_4\text{P}\cdot\text{Na}_2$ $\diamond$ M_r 370.43 $\diamond$ CAS [102185-33-1]

WGK 1 $\diamond$ HS 29339980

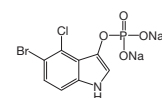
Storage temperature -15 °C to -25 °C

Crystalline, easily soluble in water, more stable than the monopotassium salt. Store dry in the dark. Substrate for phosphatase.

Assay (HPLC)

min. 99.0 %

Cat.No.	Size	EUR
15259.02	500 mg	89,00



■ 5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt research grade

(BCIP)

$\text{C}_8\text{H}_6\text{NO}_4\text{BrClP}\cdot\text{C}_7\text{H}_9\text{N}$ or $\text{C}_{15}\text{H}_{15}\text{BrClN}_2\text{O}_4\text{P}$ $\diamond$ M_r 433.6

$\diamond$ CAS [6578-06-9]

EINECS 229-506-1 $\diamond$ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 μ l NBT stock solution and 33 μ l BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl_2 , 100 mM Tris; pH 9.5)

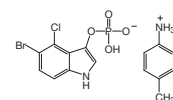
Assay (HPLC)

min. 99.0 %

References:

1. Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size	EUR
15247.02	100 mg	25,00
15247.03	500 mg	85,00



5-Bromo-4-chloro-3-indolyl-β-D-galactoside (X-Gal)

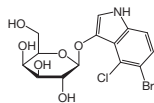
research grade

(X-Gal)

C₁₄H₁₅BrClNO₆ ♦ M_r 408.6 ♦ CAS [7240-90-6]

EINECS 230-640-8 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C



X-gal is a well known histochemical substrate used to detect the β-galactosidase enzyme (1, 2, 3, 4, 9, 10). Identification of lac^c-colonies (8). X-gal is used to distinguish recombinant plasmids from parental vectors in cloning experiments using vectors containing the lacZ or lacZ [DMvP1](-)-peptide gene (2, 3, 5). Upon hydrolysis, X-gal yields a localized, insoluble blue precipitate making it exceptionally useful in blotting, immunocytochemical, and ELISA assays. X-gal has been used for the detection of coliforms (*E. coli*) in municipal water supplies (6) and food products (7). X-gal is often used in conjunction with IPTG (isopropyl-β-D-thiogalactopyranoside, cat. no. 26600) which binds and inhibits the lac repressor thus inducing β-galactosidase activity.

Stock solution: 20 mg/ml in DMF. Store in aliquots at -20 °C in the dark. For detection of transformants, use in final concentration of 40 µg/ml.

Assay (HPLC) min. 99.0 %

References:

1. Maloy, S.R. (1990) Experimental Techniques in Bacterial Genetics, Jones and Bartlett (eds.), Boston, MA
2. Miller, J.H. (1992) A Short Course in Bacterial Genetic, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, N.Y.
3. Sambrook, J. et al. (1989) Molecular Cloning: A laboratory Manual, 2nd. ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor (4.8, 4.22-4.23, 4.33, 4.37-4.38, 1.85-1.86, B.14)
4. Horowitz, J. et al. (1964) J. Med. Chem. **7**, 574
5. Brand, A. and Perrimon, N. (1993), Development **118**, 401
6. Ley, A. et al. (1993) Can. J. Microbio. **39**, 821
7. Feldsine, P.T. et al. (1993) J. AOAC Int. **76**, 5
8. Loida, Z. et al. (1973) Histochemie **34**, 31-9
9. Loida, Z. et al. (1979) in »Enzyme Histochemistry, A Laboratory Manual«, Springer-Verlag Berlin, Heidelberg, New York
10. Davies et al. (1980) Advanced Bacterial Genetics, Cold Spring Harbor, N.Y.

Cat.No.	Size	EUR
15243.06	250 mg	27,00
15243.03	1 g	69,00
15243.07	5 g	235,00

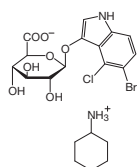
5-Bromo-4-chloro-3-indolyl-β-D-glucuronide-cyclohexylammonium salt

(X-Gluc; X-glcA CHX)

C₁₄H₁₃BrClNO₇·C₆H₁₁N or C₂₀H₂₆BrClN₂O₇ ♦ M_r 521.8 ♦ CAS [114162-64-0]

WGK 1 ♦ HS 29389090

Storage temperature -15 °C to -25 °C



Chromogenic substrate for β-glucuronidase. The chromogenic substrate X-gluc is used in a variety of applications for detection of β-glucuronidase enzyme. This compound has been used since late 1960 in plant tissue sections. Because of the localized colour which X-gluc produces upon reduction, it is extremely useful in identifying gene presence within most cell types (2). Recent applications of this product include its use in the rapid detection of GUS (*E. coli* β-glucuronidase) gene fusion marker in plants (6, 7). X-Gluc has also been reported applications in detection of *E. coli* in food samples such as meat, dairy products, and shellfish (4, 9).

This chemical has clinical applications in the assessment of urinary infections by detection of the presence of *E. coli* (8). X-gluc has gained international acceptance as highly accurate test for the presence of *E. coli* in potable water sample thereby greatly reducing false positive and negative found with traditional methods.

Assay (TLC) min. 98.0 %

References:

1. Sartory, D.P. & Howard, L. (1992) Let. Appl. Microbiol. **15**, pp. 2373-376
2. Ellis, D.D. et al. (1993) Bio/Technology **11**, No. 1, pp 84-89
3. Brenner, K.P. et al. Abstracts for the Annual Meeting of the American Society for Microbiology, May 16-20, 1993
4. Restaino, L. et al. (1990) J. Food Protect. **53**, No. 6, pp. 508-510
5. Frampton, E.W. et al. (1988) J. Food Protect. **51**, No. 5, pp. 402-404
6. Bonomini, V.R. et al. (1993) Plant Cell Reports **13**, No. 1, pp. 17-23
7. Martin, G.C. et al. (1990) J. Amer. Soc. Hortic. Sci. **115**, No. 4, pp. 686-691
8. Delisle, G.J. and Ley, A. (1989) J. Clin. Microbiol. **27**, No. 4, pp. 778-779
9. Watkins, W.D. et al. (1988) Appl. Environ. Microbiol. **54**, pp. 1874-1875

Cat.No.	Size	EUR
15248.03	100 mg	63,00

Chemiluminescence reagent for Horseradish Peroxidase

HS 38220000

Storage temperature +2 °C to +8 °C

Ready-to-use substrate solution for chemiluminescence detection of membrane bound antigens or nucleic acid sequences directly with Horseradish Peroxidase (HRP) or indirectly with HRP-conjugated antibodies or Streptavidin labeled (1). Prior before use add 30 % hydrogen peroxide in a 1:1000 dilution (not provided) and use 100 µl/cm².

- High resolution and sensitivity
- Short exposure time
- Document your results on film or with a chemiluminescence applicable gel documentation system.

References:

1. Thorpe, G.H.G. and Kricka, L. J. (1986) Methods Enzymol. **133**, 331-353



Cat.No.	Size	EUR
42582.01	250 ml	51,00
42582.02	500 ml	85,00

Anti-Collagenase (*Clostridium histolyticum*), polyclonal antibody from sheep

HS 30021098

Storage temperature -15 °C to -25 °C **

Specificity: Collagenase from *Clostridium histolyticum*. Polyclonal antibody produced in sheep against Collagenase NB. IgG fraction purified by Protein G affinity chromatography. 100 µg IgG (1 mg/ml) supplied as solution in PBS with 0.01 % sodium azide. Anti-Collagenase (*Clostridium histolyticum*) polyclonal antibody is produced in sheep against clostridial Collagenase NB. Clostridial collagenase consists of several collagenase isoforms which are recognized by the antibody. Anti-Collagenase polyclonal antibody can be used in ELISA and Western blot experiments, immunostaining of tissue and analysis of residual collagenase impurities in cell preparations.

Tested in ELISA and Western blot.

Store aliquots at -15 to -25 °C. Thaw at 4 °C. Avoid freeze and thaw cycles.

Cat.No.	Size	EUR
58050.01	100 µg	342,00

Collagenase substrate per E. Wünsch

(4-Phenylazobenzyloxycarbonyl-Pro-Leu-Gly-Pro-D-Arg)

C₃₈H₅₂N₁₀O₈ ♦ M_r 776.9 ♦ CAS [17011-78-8]

EINECS 241-086-1 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

Purity (HPLC) > 97.0 %

References:

1. Evans, C.H. (1981) Biochem. J. **195**, 677-84
2. Wünsch, E. & Heidrich, H.G. (1963) Hoppe-Seyler's Z. Physiol. Chem. **333**, 149-51
3. Strauch, L. & Vencelj, H. (1967) Hoppe-Seyler's Z. Physiol. Chem. **348**, 465-8
4. Reil-Dlouha, V. et al. (1976) J. Mol. Biol. **107**, 293-305
5. Nagelschmidt, M. et al. (1979) Biochem. Biophys. Acta **571**, 105-11

Cat.No.	Size	EUR
52268.02	50 mg	75,00

3,3'-Diaminobenzidine-4HCl·xH₂O research grade

(DAB)

C₁₂H₁₄N₄·4HCl·xH₂O ♦ M_r 360.1 (anhydr.) ♦

CAS [868272-85-9]

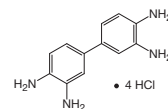


WARNING

H302-H332-H351 ♦ Carc. 2 ♦

EINECS 231-018-9 ♦ WGK 3 ♦ HS 29215990

Storage temperature +2 °C to +8 °C



Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (titr.) min. 96.0 %

References:

1. Hanker, J.S. et al. (1972) Histochemie **30**, 201-14
2. Graham, R.C. & Karnovsky, M.J. (1966) J. Histochem. Cytochem. **14**, 291-302

Cat.No.	Size	EUR
18865.01	100 mg	12,00
18865.02	1 g	22,00

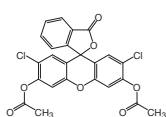
2',7'-Dichlorofluorescein diacetate analytical grade

(Diacetylchlorofluorescein)
 $C_{24}H_{16}Cl_2O_7$ ♦ M_r 487.3 ♦ CAS [4091-99-0]

WGK 1 ♦ HS 29329900

Storage temperature -15 °C to -25 °C

MP 205 - 210 °C



Cat.No.	Size	EUR
19353.03	100 mg	75,00

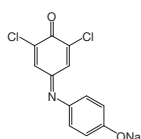
2,6-Dichlorophenolindophenol-Na-salt analytical grade

(Tillman's reagent; Phenolindo-2,6-dichlorophenol; DPIP)
 $C_{12}H_6Cl_2NO_2 \cdot Na$ ♦ M_r 290.1 ♦ CAS [620-45-1]

EINECS 210-640-4 ♦ WGK 1 ♦ HS 29252900

For vitamin C determination.

λ max. 0.001 % in water 604 ± 4 nm



References:

1. Hiromi, K. et al. (1980) Anal. Biochem. **101**, 421-6

Cat.No.	Size	EUR
19354.01	5 g	29,00

3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium ·bromide research grade

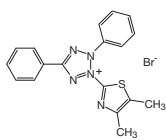
(MTT; Thiazolyl blue)

$C_{18}H_{16}BrN_5S$ ♦ M_r 414.33 ♦ CAS [298-93-1]

EINECS 206-069-5 ♦ WGK 2L ♦ HS 29341000

Detection of dehydrogenases in combination with phenazine methosulfate (1). Terminal electron acceptor in the cycling assay for pyridine nucleotides (2). For colorimetric assay to measure cell activation (3, 4).

Assay (titr.) min. 98.0 %



References:

- Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
- Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
- Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
- Hansen, M.B. et al. (1989) J. Immunol. Methods **119**, 203-10

Cat.No.	Size	EUR
20395.01	250 mg	12,00
20395.02	1 g	25,00
20395.03	5 g	95,00
20395.04	25 g	390,00

Fluorescein diacetate 5xcryst. research grade

(Diacetylfluorescein)

$C_{24}H_{16}O_7$ ♦ M_r 416.4 ♦ CAS [596-09-8]

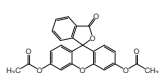
EINECS 209-877-6 ♦ WGK 1 ♦ HS 29329900

Storage temperature +2 °C to +8 °C

Special quality for the study of cell membranes (1).

For histochemical esterase detection (2). Measurement of mitochondrial pH-gradients in isolated hepatocytes (3). Use as fluorescent viability stain (4 - 6).

MP 200 - 205 °C



References:

- Rotman, B. & Papermaster, B.W. (1963) Proc. Natl. Acad. Sci. USA **50**, 134-41
- Guibault, G.G. & Kramer, D.N. (1964) Anal. Chem. **36**, 409-12
- Thomas, P.J. et al. (1991) Arch. Biochem. Biophys. **288**, 250
- Gray, D.W.R. & Morris, P.J. (1987) Stain Technol. **62**, 373
- Jamagin, J.L. & Luchsinger, D.W. (1980) Stain Technol. **55**, 253
- Ross, D.D. et al. (1989) Cancer Res. **49**, 3776

Cat.No.	Size	EUR
21575.02	5 g	59,00

D-Fructose-1,6-biphosphate-Na₃-salt research grade

(Harden-Young-ester)

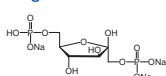
$C_6H_{11}O_{12}P_2Na_3 \cdot 8H_2O$ ♦ M_r 550.19 ♦ CAS [81028-91-3]

EINECS 253-778-0 ♦ WGK 1 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

Free of monophosphate. Suitable as substrate for Aldolase.

Assay (titr.) min. 98.0 %



Cat.No.	Size	EUR
21860.01	1 g	32,00

α-D-Glucose anhydrous analytical grade

(Dextrose; α-D-Glucopyranose)

$C_6H_{12}O_6$ ♦ M_r 180.16 ♦ CAS [50-99-7]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Assay (titr.) min. 99.5 %

Water (loss on drying) max. 0.5 %



Cat.No.	Size	EUR
22700.01	100 g	9,00
22700.02	1 kg	22,50
22700.03	5 kg	79,00

α-D-Glucose-6-phosphate-Na₂-salt analytical grade

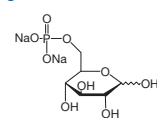
$C_6H_{11}O_9P \cdot Na_2$ ♦ M_r 304.2 (anhydrous) ♦ CAS [3671-99-6]

EINECS 222-938-1 ♦ WGK 1 ♦ HS 29199000

Storage temperature -15 °C to -25 °C

Assay (enzymat.) min. 98.0 %

Water (K.F.) 8.5 - 12.5 %



Cat.No.	Size	EUR
22799.02	1 g	37,00
22799.03	5 g	135,00

α-D-Glucose monohydrate analytical grade

(Dextrose)

$C_6H_{12}O_6 \cdot H_2O$ ♦ M_r 198.2 ♦ CAS [5996-10-1]

EINECS 200-075-1 ♦ WGK 1L ♦ HS 17023050

Ph. Eur.

$[\alpha]_{20}^{\circ}C/D$ +52.5° to +53.3°

Water (K.F.) 7.0 - 9.5 %

Heavy metals (Pb) max. 0.5 ppm



Cat.No.	Size	EUR
22720.01	1 kg	16,00
22720.02	10 kg	85,00

Glycogen from oyster research grade

$(C_6H_{10}O_5)_n$ ♦ CAS [9005-79-2]

EINECS 232-683-8 ♦ WGK - ♦ HS 39139000

Storage temperature +2 °C to +8 °C

Substrate for glycogen phosphorylase (EC 2.4.1.1).

References:

1. Sutherland, E.W. (1955) Methods Enzymol. **1**, 215-22

Cat.No.	Size	EUR
23550.02	5 g	39,00
23550.03	25 g	165,00

Iodonitrotetrazolium chloride research grade

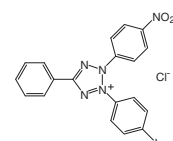
(INT; 2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-phenyl-2H-tetrazolium-chloride; Iodonitrotetrazolium violet)

$C_{19}H_{13}ClIN_5O_2$ ♦ M_r 505.72 ♦ CAS [146-68-9]

WARNING

H302-H312-H332 ♦ EINECS 205-676-2 ♦

WGK 1 ♦ HS 29339980



For LDH detection (1).

For colorimetric measurement of enzymatic hydrolysis of terminal galactose from GM₁ ganglioside (2).

Assay (titr.) min. 99.0 %

References:

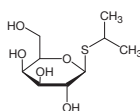
- Babson, A.L. & Babson, S.R. (1973) Clin. Chem. **19**, 766-9
- Urbanowski, J.C. et al. (1980) Anal. Biochem. **105**, 461-7

Cat.No.	Size	EUR
26840.02	2,5 g	25,00
26840.03	10 g	70,00
26840.04	50 g	285,00

Isopropyl-β-D-thiogalactopyranoside research grade

(IPTG; Isopropyl-1-thio-β-D-galactopyranoside)
 $C_9H_{18}O_5S$ ♦ M_r 238.3 ♦ CAS [367-93-1]

EINECS 206-703-0 ♦ WGK 1 ♦ HS 29389090
 Storage temperature -15 °C to -25 °C



Analog of galactose, not split by β-galactosidase.
 Inducer of the lac operon in bacteria. Used in conjunction with X-Gal (5-bromo-4-chloro-indolyl-β-D-galactoside, cat. no. 15243) for detection of lac⁺ colonies. Dissolve in H₂O to 200 mg/ml, sterilize by filtration and store in aliquots at -20 °C. For detection of transformants, use in final concentration of 0.1 mM.

Assay (HPLC) 98.0 - 101.0 %
 [α] 20 °C/D (c=1 in water) -28.5 ° to -34.5 °
 1,4-Dioxane not detected

References:

- Donner, J. et al. (1982) J. Biol. Chem. **257**, 14826-9
- Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (4.33, 4.37-4.38, 1.8-1.9, 17.12-17.13, B.11)
- Ed. Ausubel et al. (1994) Current Protocols in Molecular Biology, Massachusetts General Hospital & Harvard Medical School (1.4.3, 16.2.3, 1.15.1)

Cat.No.	Size	EUR
26600.03	1 g	21,00
26600.04	10 g	95,00
26600.06	50 g	325,00

Luminol research grade

(3-Aminophthalhydrazine; 5-Amino-2,3-dihydro-1,4-phthalazinedione)

$C_8H_7N_3O_2$ ♦ M_r 177.2 ♦ CAS [521-31-3]
 **WARNING**
 H302-H332 ♦ EINECS 208-309-4 ♦ WGK 1 ♦
 HS 29280090



For microdetermination of superoxide dismutase (2). Peroxidase reagent (1).

Assay (titr.) min. 95.0 %

References:

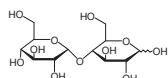
- Freeman, T.M. & Seitz, W.R. (1978) Anal. Chem. **50**, 1242-6
- Huu, T.P. et al. (1984) Anal. Biochem. **142**, 467-2
- Roswell, D.F. & White, E.H. (1978) Methods Enzymol. **57**, 409-23
- Leong, M.M. L. & Fox, G.R. (1990) Methods Enzymol. **184**, 442-51

Cat.No.	Size	EUR
28085.02	5 g	29,00
28085.03	25 g	116,00

D-Maltose research grade

(Maltobiose; 4-O-α-D-Glucopyranosyl-D-glucopyranose)
 $C_{12}H_{22}O_{11} \cdot H_2O$ ♦ M_r 360.32 ♦ CAS [6363-53-7]

EINECS 200-716-5 ♦ WGK 1 ♦ HS 17029010

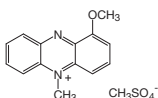


Assay (HPLC) min. 95.0 %
 [α] 20 °C/D (c=5 in water) +137 ± 2 °
 Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
28390.01	50 g	16,00
28390.02	250 g	32,00

1-Methoxyphenazine-methosulfate research grade

(1-Methoxy-PMS; 1-Methoxy-5-methylphenazinium-methyl sulfate)
 $C_{14}H_{13}N_2O \cdot CH_3SO_4^-$ ♦ M_r 336.4 ♦ CAS [65162-13-2]



 **WARNING**
 H302-H315-H319-H335 ♦ EINECS 265-579-6 ♦ WGK 1 ♦
 HS 29339980
 Storage temperature +2 °C to +8 °C

Electron mediator between NAD(P)H and tetrazolium dyes in the assay and activity staining of enzymes of diagnostic importance, e.g. LDH; photochemically stable substitute for PMS.

Assay (UV) min. 98.0 %

References:

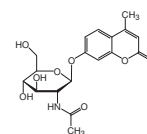
- Nakamura, S. et al. (1980) Clin. Chim. Acta **101**, 321-6

Cat.No.	Size	EUR
28966.01	50 mg	75,00
28966.02	250 mg	295,00

4-Methylumbelliferyl-N-acetyl-β-D-glucosaminide analytical grade

$C_{18}H_{21}NO_8$ ♦ M_r 379.4 ♦ CAS [37067-30-4]

EINECS 253-333-0 ♦ WGK 1 ♦ HS 29322090
 Storage temperature -15 °C to -25 °C



Fluorogenic substrate for N-acetyl-β-D-glucosaminidase.

References:

- Leaback, D.H. & Walker, P.-G. (1961) Biochem. J. **78**, 151-6
- Linko-Löppönen, S. & Mäkinen, M. (1985) Anal. Biochem. **148**, 50-3
- Bergmeyer, H.U. et al. (1983) Methods of Enzymatic Analysis (Bergmeyer, H.U. ed.) 3rd Ed., vol. **2**, 130-6

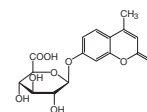
Cat.No.	Size	EUR
29662.01	50 mg	36,00
29662.02	250 mg	135,00

4-Methylumbelliferyl-β-D-glucuronide analytical grade

(MUG)

$C_{18}H_{18}O_9$ ♦ M_r 352.3 (as dry matter) ♦ CAS [6160-80-1]

EINECS 228-186-0 ♦ WGK 1 ♦ HS 29322090
 Storage temperature -15 °C to -25 °C



Fluorogenic substrate for β-D-glucuronidase.

Assay (TLC) min. 99.0 %
 Water content (KF) max. 15.0 %

References:

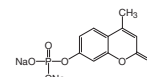
- Mead, J.A.R. (1955) Biochem. J. **61**, 569-74

Cat.No.	Size	EUR
29667.01	50 mg	32,00
29667.02	250 mg	125,00

4-Methylumbelliferyl phosphate- Na_2 -salt research grade

$C_{10}H_{16}O_6P \cdot Na_2$ ♦ M_r 300.1 ♦ CAS [22919-26-2]

EINECS 245-325-0 ♦ WGK 1 ♦ HS 29322985
 Storage temperature -15 °C to -25 °C



Fluorogenic substrate for alkaline and acid phosphatase (1). Substrate for surface membrane associated phosphodiesterase.

References:

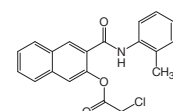
- Guilbault, G.G. et al. (1968) Anal. Lett. **1**, 333-45

Cat.No.	Size	EUR
29670.01	100 mg	15,00
29670.02	500 mg	37,00

Naphthol-AS-D-chloroacetate pure

$C_{20}H_{16}NO_3Cl$ ♦ M_r 353.8 ♦ CAS [35245-26-2]

EINECS 252-463-5 ♦ HS 29241900
 Storage temperature -15 °C to -25 °C



Histochemical substrate for esterase with improved stability.

Assay (HPLC) min. 97.0 %

References:

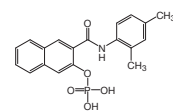
- Burstone, M.S. (1957) Arch. Pathol. **63**, 164-7
- Moloney, W. et al. (1960) J. Histochem. Cytochem. **8**, 200-7

Cat.No.	Size	EUR
29995.01	250 mg	21,00
29995.02	1 g	58,00

Naphthol-AS-MX-phosphate research grade

$C_{19}H_{18}NO_5P$ ♦ M_r 371.32 ♦ CAS [1596-56-1]

H315-H319-H335 ♦ EINECS 216-480-1 ♦
 HS 29241900
 Storage temperature -15 °C to -25 °C



Selective substrate of alkaline phosphatase. Suitable dye for coupling. Fast Blue RR (1). Fast Red TR-salt (cat. no. 21317) (2).

Assay (HPLC) min. 99.0 %

References:

- Makler, M.T. et al. (1981) Clin. Chem. **27**, 1609-13
- Avrameas, S. (1976) Methods Enzymol. **44**, 709-17

Cat.No.	Size	EUR
30002.01	250 mg	29,00

■ Naphthol-AS-BI-phosphate research grade

(6-Bromo-2-phosphohydroxy-3-naphthoic acid o-anisidide)

$C_{18}H_{15}BrNO_6P$ ♦ M_r 452.2 ♦ CAS [1919-91-1]



WARNING

H315-H319-H335 ♦ EINECS 217-645-0 ♦

WGK 1 ♦ HS 29322985

Storage temperature -15 °C to -25 °C

Histochemical substrate for phosphatase.

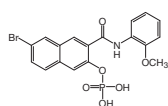
Purity (HPLC)

min. 95.0 %

References:

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 914, Little, Brown & Co., Boston

Cat.No.	Size	EUR
29988.01	100 mg	17,00
29988.02	500 mg	58,00
29988.03	1 g	110,00
29988.04	5 g	495,00



■ 1-Naphthyl acetate analytical grade

(α -Naphthyl acetate; Acetic acid α -naphthyl ester)

$C_{12}H_{10}O_2$ ♦ M_r 186.21 ♦ CAS [830-81-9]

EINECS 212-599-8 ♦ HS 29153900

Storage temperature +2 °C to +8 °C

Substrate for esterases.

Assay (HPLC)

min. 99.0 %

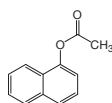
MP

42 - 46 °C

References:

1. Mastropaolo, W. & Yourno, J. (1981) Anal. Biochem. **115**, 188-93

Cat.No.	Size	EUR
30040.01	25 g	65,00



■ 1-Naphthyl phosphate-Na-salt analytical grade

(Sodium-1-naphthyl hydrogen phosphate)

$C_{10}H_7O_4P \cdot Na \cdot H_2O$ ♦ M_r 264.15 ♦ CAS [81012-89-7]

EINECS 220-171-7 ♦ HS 29199000

Storage temperature +2 °C to +8 °C

Specially purified product for assay of phosphatase activity.

Assay (titr.)

min. 98.0 %

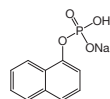
Free naphthol

max. 0.01 %

References:

1. Pearse, A.C.E. (1960) Histochemistry, Theoretical and Applied, 2nd ed., p. 882, Little, Brown & Co., Boston

Cat.No.	Size	EUR
30130.02	1 g	15,00
30130.03	5 g	49,50



■ Nitro Blue tetrazolium chloride analytical grade

(NBT; Nitro BT; Nitro tetrazolium Blue chloride;

Ditrazolium dye)

$C_{40}H_{30}Cl_2N_{10}O_6$ ♦ M_r 817.7 ♦ CAS [298-83-9]



WARNING

H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦

HS 29339980

Storage temperature +2 °C to +8 °C

A ditrazolium compound for demonstrating succinic dehydrogenase activity (1). Glucose-6-phosphate dehydrogenase (2). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 μ l NBT stock solution and 33 μ l BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM $MgCl_2$, 100 mM Tris; pH 9.5)

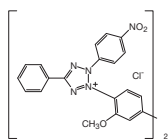
Purity

min. 98.0 %

References:

1. Nachlas, M.M. et al. (1957) J. Histochem. Cytochem. **5**, 420-36
2. Negi, D.S. & Stephens, R.J. (1977) J. Histochem. Cytochem. **25**, 149-54
3. Auscher, C. & Amory, N. (1976) Biomedicine **5**, 37-8

Cat.No.	Size	EUR
30550.01	250 mg	23,00
30550.02	1 g	64,00
30550.03	5 g	263,00



■ 2-Nitrophenyl- β -D-galactopyranoside research grade

(ONPG)

$C_{12}H_{15}NO_8$ ♦ M_r 301.3 ♦ CAS [369-07-3]

EINECS 206-716-1 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C

Substrate for β -D-galactosidase.

Purity (HPLC)

> 99.0 %

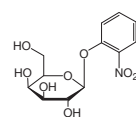
Free nitrophenol

max. 500 ppm

References:

1. Levvy, G.A. & Conchie, J. (1966) Methods Enzymol. **8**, 571-84
2. Naider, F. et al. (1972) Biochemistry **11**, 3202-7

Cat.No.	Size	EUR
30710.01	1 g	17,00
30710.02	5 g	36,00
30710.03	25 g	144,00



■ 4-Nitrophenyl- β -D-glucuronide research grade

$C_{12}H_{13}NO_9$ ♦ M_r 315.2 ♦ CAS [10344-94-2]

EINECS 233-753-0 ♦ WGK 1 ♦ HS 29389090

Storage temperature +2 °C to +8 °C

Substrate for β -D-glucuronidase.

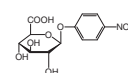
Assay (HPLC)

min. 99.0 %

References:

1. Nimmo-Smith, R.H. (1961) Biochim. Biophys. Acta **50**, 166-9

Cat.No.	Size	EUR
30725.02	1 g	82,00



■ 4-Nitrophenyl phosphate- Na_2 -salt analytical grade

(4-NPP)

$C_6H_5NO_8P \cdot Na_2 \cdot 6H_2O$ ♦ M_r 371.1 ♦ CAS [4264-83-9]

EINECS 224-246-5 ♦ WGK 1 ♦ HS 29199000

Storage temperature -15 °C to -25 °C

Filled under nitrogen. High quality substrate for alkaline and acid phosphatase (1).

Assay (from HPLC)

min. 99.0 %

Water (KF)

28.5 - 30.0 %

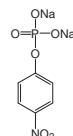
free p-Nitrophenol

max. 0.01 %

References:

1. Lowry, O.H. (1957) Methods Enzymol. **4**, 371-2
2. Bowers, G. et al. (1981) Clin. Chem. **27**, 135-43

Cat.No.	Size	EUR
30770.04	5 g	17,00
30770.02	25 g	55,00
30770.03	100 g	168,00



■ Phenazine-methosulfate pure

(PMS; N-Methylphenazinium methylsulfate)

$C_{13}H_{11}N_2 \cdot CH_3SO_4$ ♦ M_r 306.34 ♦ CAS [299-11-6]



WARNING

H315-H319-H335 ♦ EINECS 206-072-1 ♦

WGK 1 ♦ HS 29339980

Storage temperature +2 °C to +8 °C

Electron coupler, transfers electrons from NADH to tetrazolium salts, e.g. MTT, and thus makes NAD reductions visible.

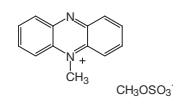
Assay (titr.)

min. 98.0 %

References:

1. Faber, E. et al. (1958) J. Histochem. Cytochem. **6**, 389
2. Altman, F.P. Biochem. J. **125**, 21P-22P

Cat.No.	Size	EUR
32030.01	1 g	16,00
32030.02	10 g	98,00



■ Phenolphthalein diphosphate- Na_4 -salt research grade

$\text{C}_{20}\text{H}_{12}\text{O}_{10}\text{P}_2\cdot\text{Na}_4$ ♦ M_r 566.20 ♦ CAS [68807-90-9]

EINECS 272-326-3 ♦ HS 29322985

Storage temperature -15 °C to -25 °C *

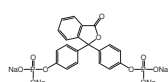
Substrate for phosphatase.

Assay (titr.)

min. 95.0 %

References:

1. Comfort, D. & Campbell, D.J. (1966) Clin. Chim. Acta **14**, 263-9



Cat.No.	Size	EUR
32050.01	10 g	95,00

■ D-Salicin research grade

(Salicylalcohol β -D-glucoside; 2-[Hydroxymethyl]phenyl- β -D-glucopyranoside)

$\text{C}_{13}\text{H}_{18}\text{O}_7$ ♦ M_r 286.3 ♦ CAS [138-52-3]

EINECS 205-331-6 ♦ HS 29389090

For bacteriology. Substrate for β -glucosidase.

Assay (HPLC)

min. 99.0 %

MP

200 - 202 °C

$[\alpha]$ 20 °C/D (c=5 in water)

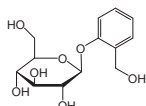
-59.5° to -63.5 °

Loss on drying

max. 0.5 %

References:

1. Baruah, P. & Swain, T. (1957) Biochem. J. **66**, 321-3



Cat.No.	Size	EUR
34600.01	5 g	32,00

■ SERVALight Polaris CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- High sensitivity, low pictogram limit of detection
- Long light emission for 6 hours
- Primary antibody dilution 1:1000 -1:5000
- Secondary antibody dilution 1:20.000 - 1:100.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42584.01	100 ml	68,00
42584.02	250 ml	130,00
42584.03	500 ml	203,00

■ SERVALight Eos CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Very highly sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

- Very high sensitivity, high femtogram limit of detection
- Very long and steady light emission for 12 hours
- Primary antibody dilution 1:1000 -1:15.000
- Secondary antibody dilution 1:25.000 - 1:150.000
- Detection can be done by film or CCD imaging equipment

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42585.01	50 ml	70,00
42585.02	250 ml	176,00
42585.03	500 ml	335,00

■ SERVALight EosUltra CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Ultrahigh sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

SERVALight EosUltra substrate is optimized for maximum length of light emission and therefore ideal for detection by CCD imaging systems.

- Ultrahigh sensitivity, low femtogram limit of detection
- Extremely long light emission at a very high signal level for 18 hours
- Primary antibody dilution 1:5000 -1:50.000
- Secondary antibody dilution 1:50.000 - 1:250.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42586.01	20 ml	83,00
42586.02	100 ml	338,00
42586.03	200 ml	560,00

■ SERVALight Helios CL HRP WB Substrate Kit

HS 38220000

Storage temperature +2 °C to +8 °C

Extremely sensitive enhanced chemiluminescence kit for the detection of immobilized proteins (Western Blot) or immobilized nucleic acids (Southern and Northern Blot) labelled directly with Horseradish Peroxidase (HRP) or indirectly with HRP-labelled antibodies/streptavidin.

The substrate is readily prepared by mixing component A (luminol/enhancer solution) with component B (stabilized peroxide solution) in a one-to-one ratio.

Due to the extremely high light output of the SERVALight Helios substrate very short exposure times or very high dilution of antibodies can be used. Especially when using film detection this is critical to receive optimal performance.

- Extreme sensitivity, low femtogram limit of detection
- Long light emission for 8 hours
- Primary antibody dilution 1:5000 -1:100.000
- Secondary antibody dilution 1:100.000 - 1:500.000
- Detection can be done preferably by CCD imaging equipment or film

SERVALight is produced by Cyanagen Srl. Cyanagen Srl is subject of US and EU patent application number US7803573; EP1962095; US7855287; EP1950207, together with other equivalent granted patents and patent applications in other countries.

Cat.No.	Size	EUR
42587.01	20 ml	92,00
42587.02	100 ml	395,00
42587.03	200 ml	630,00

■ 3,3',5,5'-Tetramethylbenzidine research grade

(TMB)

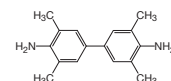
$\text{C}_{16}\text{H}_{20}\text{N}_2$ ♦ M_r 240.4 ♦ CAS [54827-17-7]



WARNING

H302-H331 ♦ EINECS 259-364-6 ♦

WGK 2 ♦ HS 29215990



Substrate for horseradish peroxidase. More sensitive than ABTS and more stable and less toxic than diaminobenzidine. See also TMB Ready to use ELISA substrate (cat.no. 37068) and TMB ready-to-use substrate for blotting (cat.no. 37070).

Assay (titr.)

98.0 - 102.0 %

Cat.No.	Size	EUR
35926.02	5 g	72,00
35926.03	25 g	254,00

■ **Tetrazolium Blue-chloride** research grade

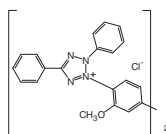
(BT; Blue tetrazolium chloride; 2,2',5,5'-Tetraphenyl-3,3'-(3,3'-dimethoxy-4,4'-biphenylene)-2H,2H'-ditetrazolium chloride)

$C_{40}H_{32}N_8O_2Cl_2$ ♦ M_r 727.7 ♦ CAS [1871-22-3]

EINECS 217-488-8 ♦ WGK 2L ♦ HS 32041900

Assay (titr.)

min. 94 %



Cat.No.	Size	EUR
35950.02	5 g	69,00

■ **TMB ready-to-use substrate for blotting**

HS 38220000

Storage temperature +2 °C to +8 °C

Single component TMB substrate for detection of horseradish peroxidase in western, northern, southern and dot blots. The reaction product is a blue precipitate. Contains a proprietary enhancer and non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
37070.01	100 ml	58,00

■ **TMB ready to use ELISA substrate**

WGK 1 ♦ HS 38220000

Storage temperature +2 °C to +8 °C

One bottle reagent: contains 3,3',5,5'-Tetramethylbenzidine, buffer and peroxide in a single convenient, ready-to-use solution recommended for the detection of horseradish peroxidase in ELISA assays. Develops a deep blue colour that turns bright yellow when the reaction is stopped. Light sensitive. Do not freeze.

Cat.No.	Size	EUR
37068.01	100 ml	69,00

■ **Triphenyltetrazolium chloride** analytical grade

(TTC; Tetrazolium Red; 2,3,5-Triphenyl-2H-tetrazolium chloride)

$C_{19}H_{15}ClN_4$ ♦ M_r 334.79 ♦ CAS [298-96-4]



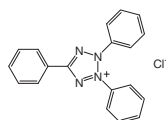
WARNING

H315-H319-H335 ♦ EINECS 206-071-6 ♦

HS 29339980

Assay

min. 98.0 %



Cat.No.	Size	EUR
37130.03	10 g	27,00
37130.02	50 g	91,00

■ **WST 1**

(2-(4-Iodophenyl)-3-(4-nitrophenyl)-5-(2,4-disulphophenyl)-2H-tetrazolium,Na-salt)

$C_{19}H_{11}I_2N_5O_8S_2Na$ ♦ M_r 651.35 ♦ CAS [150849-52-8]



WARNING

H302-H312-H315-H319-H332-H335 ♦

HS 29339980

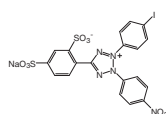
Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble (>0.1 M) formazan upon reduction. Suitable for cell proliferation and cytotoxicity assays.

Keep dry and dark.

References:

1. Ishiyama, M. et al. (1993) Chem. Pharm. Bull. **41**, 1118
2. Ishiyama, M. et al. (1995) In vitro Toxicol. **8**, 187
3. Ishiyama, M. et al. (1995) Analyst **120**, 113



Cat.No.	Size	EUR
38391.01	25 mg	77,00
38391.02	100 mg	240,00

■ **XTT**

(Sodium3,3'-[-(Phenylamino)carbonyl]-3,4-Tetrazolium)-Bis(4-methoxy-6-nitro)benzenesulfonic acid hydrate)

$C_{22}H_{16}N_8O_{13}S_2Na$ ♦ M_r 674.53 ♦ CAS [111072-31-2]

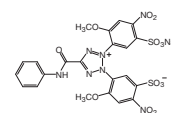
HS 29339980

Storage temperature +2 °C to +8 °C

Monotetrazolium salt which forms a water-soluble formazan upon reduction. Suitable for anti-HIV (1 - 3) and anti-tumor (4 - 6) drug testing as well as for cell proliferation assays (7 - 8).

References:

1. Weislov, O.S. et al. (1989) J. Natl. Cancer Inst. **81**, 577-86
2. Gulakowski, R.J. et al. (1991) J. Virol. Methods **33**, 87-100
3. Yu, K.L. et al. (1992) J. Med. Chem. **35**, 2958-69
4. Scudiero, D.A. et al. (1988) Cancer Res. **48**, 4827-33
5. Jost, L.M. et al. (1992) J. Immunol. Methods **147**, 153-65
6. Kondo, T. et al. (1994) Oncology **51**, 535-9
7. Roehm, N.W. et al. (1991) J. Immunol. Methods **142**, 257-65
8. Buttke, T.M. et al. (1993) J. Immunol. Methods **157**, 233-40



Cat.No.	Size	EUR
38450.01	50 mg	62,00
38450.02	250 mg	219,00

For technical support contact
the SERVA experts by phone
+49 6221 1384044 or by e-mail
at tech.service@serva.de

Enzyme Inhibitors

■ **Acarbose from *Actinoplanes sp. ca.* 100 FIP-AIU/mg**

contact dried, amorph

(O-4,6-(dideoxy-4-[[[1S-(1 α , 4 α , 5 β , 6 α)]-4,5,6-trihydroxy-3-(hydroxymethyl)-2-cyclohexene-1-yl]amino]- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-O- α -D-glucopyranosyl-(1 $\rightarrow$ 4)-D-Glucose)

C₂₅H₄₃O₁₈N ♦ M_r 645.6 ♦ CAS [56180-94-0]

EINECS 260-030-7 ♦ WGK 1 ♦ HS 29400000

Ca. 100 FIP-AIU/mg (FIP- α -amylase inhibitor unit) using porcine pancreatic α -amylase.

This highly purified acarbose, a pseudotetrasaccharide, inhibits α -amylases [EC 3.2.1.1], α -glucosidases [EC 3.2.1.3], saccharases [EC 3.2.1.48].

Used e.g. in enzymatic conversions and assays where α -amylases, α -glucosidases or saccharases interfere with the reaction.

Purity (HPLC)	95.0 - 101.0
Solubility in water	1400 g/L at 20 °C
Total aerobic microbial count (TAMC)	max. 1000 CFU/g
Total combined yeasts/mould count (TYMC)	max. 100 CFU/g

Unit definition: 1 FIP- α -amylase inhibitor unit (AIU) is the amount of acarbose which will inhibit 2 FIP-units of α -amylase by 50 % at pH 6.8 and 25 °C after previous incubation.

References:

- Truscheit, E. et al. (1981): Chemistry and Biochemistry of Microbial α -Glucosidase Inhibitors; Angew. Chem. Int. Ed. Engl. **20**, 744-761
- Bischoff, H. (1994): Pharmacology of α -Glucosidase Inhibition; Eur. J. Clin. Inv. **24**, suppl. 3, 3-10

Cat.No.	Size	EUR
10017.01	100 mg	17,50
10017.02	500 mg	35,50
10017.03	1 g	58,00

■ **AEBSF-HCl research grade**

(4-(2-Aminoethyl)-benzene sulfonyl fluoride hydrochloride)

C₈H₁₀FN₂S·HCl ♦ M_r 239.7 ♦ CAS [30827-99-7]

WGK 1 ♦ HS 29214900

Storage temperature +2 °C to +8 °C

Irreversible inhibitor of thrombin and other serine proteases (e.g. chymotrypsin, kallikrein, plasmin, proteinase K, trypsin). Inhibits by acylation of the active site of the enzyme. AEBSF is water-soluble and much less toxic than PMSF and DFP. Aqueous solutions are stable between pH 5-6; limited stability above pH 7.5.

Assay (HPLC) min. 98.0 %

References:

- Walsmann, P. et al. (1972) Acta biol. med. germ. **28**, 577-585
- Marwardt, F. et al. (1973) Thrombosis Res. **2**, 343-348
- Taylor, J.A. et al. (1995) Immunology **86**, 629-635

Cat.No.	Size	EUR
12745.02	500 mg	105,00
12745.03	1 g	180,00

■ **ϵ -Aminocaproic acid analytical grade**

(6-Amino-n-hexanoic acid)

C₆H₁₃NO₂ ♦ M_r 131.2 ♦ CAS [60-32-2]

EINECS 200-469-3 ♦ WGK 1 ♦ HS 29225000

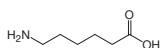
Highly active inhibitor of fibrinolysin and chymotrypsin (1). Plasmin inhibitor in fibrinogen determinations (2). As well suitable as sample buffer component for Blue Native and Clear Native PAGE and component of semi-dry blotting buffer.

Assay (titr.) min. 99.0 %

References:

- Johnson, A.J. et al. (1969) Thromb. Diath. Haemorrh., Suppl. **32**, 105-11
- Steffen, L. & Steffen, D. (1976) Clin. Chem. **22**, 381-3

Cat.No.	Size	EUR
12548.03	100 g	35,00

■ **Antipain research grade**

([(S)-1-Carboxy-2-Phenylethyl]-Carbamoyl-L-Arg-L-Val-Arginal)

C₂₇H₄₄N₁₀O₆·HCl·2H₂O ♦ M_r 677.2 ♦ CAS [37691-11-5]

EINECS 253-631-0 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

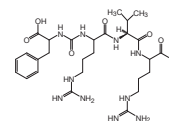
Produced by certain *Streptomyces* species.

Strong inhibitor of papain, trypsin, cathepsin A and B. Inhibits to a smaller extent also plasmin (1). Inhibits transformation of NIH3T3 cells after transfection with an activated H-ras oncogene (2). Inhibition of RNA synthesis in embryos of *Xenopus laevis* (3).

References:

- Urmezawa, H. (1976) Methods Enzymol. **45**, 683-5
- Cox, L.R. et al. (1991) Cancer Res. **51**, 4810-4
- Miyata, S. et al. (1988) J. Exp. Zool. **246**, 150-5

Cat.No.	Size	EUR
13685.01	5 mg	52,00
13685.02	25 mg	175,00

■ **Aprotinin from bovine lung lyophil.**

(Trypsin inhibitor from bovine lung; Trasylol®)

M_r ca. 6500 ♦ CAS [9087-70-1]

**WARNING**

H302 ♦ EINECS 232-994-9 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Purified inhibitor of trypsin, chymotrypsin, plasmin and especially kallikrein. For *in vitro* inhibition of fibrinolytic activity in blood samples (1).

Unit definition: 1 IU (inhibitor unit) inhibits 1 U trypsin as defined by cleavage of 1 μ mol BAEE (N-benzoyl-L-arginine ethyl ester) per minute (see under trypsin, cat.no. 37291).

Activity in other units: min. 3 Ph. Eur. Units (PEU)/mg, based on dried substance. **Unit definition:** 1 Ph. Eur. Unit of aprotinin inhibits 50 % of the enzymatic activity of 2 microkatal trypsin, measured with BAEE as substrate at pH 8.0 and 25 °C.

Activity in other units: min. 5850 Kallikrein Inactivator Units (KIU)/mg, based on dried substance. (KIU = PEU x 60 x 32,5).

Trasylol® = registered trademark of Bayer AG

References:

- Trautschold, E. et al. (1967) Biochem. Pharmacol. **16**, 59-72

Cat.No.	Size	EUR
13718.01	10 mg	40,00
13718.02	25 mg	80,00
13718.03	100 mg	285,00

■ **Benzamidine-HCl research grade**

C₇H₈N₂·HCl ♦ M_r 156.62 (anhydr.) ♦ CAS [1670-14-0]

**WARNING**

H315-H319-H335 ♦ EINECS 216-795-4 ♦ WGK 1 ♦ HS 29252900

Storage temperature +2 °C to +8 °C

Potent inhibitor of thrombin and trypsin.

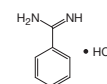
Assay (titr.) min. 99.0 %

Water content max. 15.0 %

References:

- Henkel, H.J. et al. (1983) Pharmazie **38**, 342-6

Cat.No.	Size	EUR
14525.01	5 g	19,00
14525.02	25 g	37,00



■ **Bestatin** research grade

(((2S, 3R)-3-Amino-2-hydroxy-4-phenylbutanoyl]-L-leucine)
 $C_{16}H_{24}N_2O_4 \cdot HCl$ M_r 344.8 $\blacklozenge$ CAS [65391-42-6]

WGK 1 $\blacklozenge$ HS 29224985

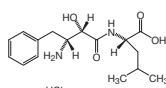
Storage temperature -15 °C to -25 °C

Aminopeptidase B and leucine aminopeptidase inhibitor (1, 2) with multi-pharmacological functions (3). Inhibitor of enkephalin degradation in cell preparations from brain (4). Anticarcinogenic (5, 6). Immunomodulating agent (7, 8). Inhibitor of leukotriene A4 hydrolase (9).

Assay (HPLC) min. 90.0 %

References:

1. Iwashashi, M. et al. (1994) *Anticancer Res.* **14**, 1563-8
2. Umezawa, H. (1984) *Rev. Infect. Dis.* **6**, 412-20
3. Ota, K. (1991) *Biomed. Pharmacother.* **45**, 55-60
4. Orning, L. et al. (1991) *J. Biol. Chem.* **266**, 1375-8
5. Umezawa, H. et al. (1976) *J. Antibiot.* **29**, 97-9
6. Burley, S.K. et al. (1991) *Proc. Natl. Acad. Sci. USA* **88**, 6912-20
7. Mathe, G. (1991) *Biomed. Pharmacother.* **45**, 49-54
8. Cohen, M.L. et al. (1983) *J. Pharmacol. Exp. Ther.* **224**, 379-85
9. Ino, K. et al. (1991) *Biotherapy* **3**, 351-7



Cat.No.	Size	EUR
14980.02	5 mg	57,50

■ **L-1-Chloro-3-tosylamido-4-phenyl-2-butanone**
research grade

(TPCK; N α -p-Tosyl-L-phenylalanine chloromethylketone)
 $C_{17}H_{18}ClNO_3S$ M_r 351.85 $\blacklozenge$ CAS [402-71-1]

EINECS 206-954-6 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29350090

Storage temperature -15 °C to -25 °C

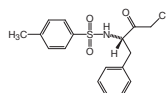
Inactivates chymotrypsin (but not trypsin) by specific reaction with histidine.

Assay (TLC) min. 98.0 %

References:

1. Ong, E.B. et al. (1965) *J. Biol. Chem.* **240**, 694-8

Cat.No.	Size	EUR
17016.02	250 mg	38,00

■ **L-1-Chloro-3-tosylamido-7-amino-2-heptanone-HCl**
research grade

(TLCK; N α -p-Tosyl-L-lysine chloromethyl ketone)
 $C_{14}H_{21}ClN_2O_3S \cdot HCl$ M_r 369.31 $\blacklozenge$ CAS [4272-74-6]

EINECS 224-266-4 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29350090

Storage temperature -15 °C to -25 °C

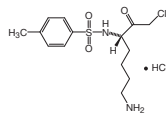
Inactivates trypsin (but not chymotrypsin) by specific reaction with histidine.

Purity (TLC) one spot

References:

1. Shaw, E. et al. (1965) *Biochemistry* **4**, 2219-24

Cat.No.	Size	EUR
17013.02	100 mg	65,00
17013.04	250 mg	155,00

■ **Chymostatin** research grade

(((S)-1-Carboxy-2-phenylethyl]-carbamoyl- α -2-imino-hexahydro-4(S)-pyrimidinyl)-(S)-glycyl-L-phenylalaninal)
 CAS [9076-44-2]

HS 29241900

Storage temperature -15 °C to -25 °C

Mixture of 3 components differing in amino acid composition at position X with component A as major form (approx. 70 %):

Component A ($C_{31}H_{41}N_7O_6$):
 Mr: 607.7): X = L-Leu
 Component B ($C_{30}H_{39}N_7O_6$):
 Mr: 593.7): X = L-Val
 Component C ($C_{31}H_{41}N_7O_6$):
 Mr: 607.7): X = L-Ile

Inhibitor of many proteinases e.g. chymotrypsin, chymotrypsin-like serine proteinases and lysosomal cysteine proteinases e.g. cathepsins B, H, and L (1, 2). Inhibits eosinophil peroxidase release from activated human eosinophils (3). Inhibitor of mammalian protein methyltransferase activity (4). Effects on globin hydrolysis by cultured malaria parasites (5). Specific inhibitor of a chymostatin sensitive angiotensin II generating enzyme (6, 7).

References:

1. Tatsuta, K. et al. (1973) *J. Antibiot.* **26**, 625-46
2. Stein, R.L. & Strimpler, A.M. (1987) *Biochemistry* **26**, 2611-5
3. Matsunaga, Y. et al. (1994) *Arch. Biochem. Biophys.* **312**, 67-74
4. Veeraragavan, K. & Gagnon, C. (1987) *Biochem. Biophys. Res. Commun.* **142**, 603-8
5. Rosenthal, P.J. (1995) *Exp. Parasitol.* **80**, 272-81
6. Okunishi, H. et al. (1993) *Jpn. J. Pharmacol.* **62**, 207-10
7. Okamura, T. et al. (1990) *J. Cardiovasc. Pharmacol.* **15**, 353-9

Cat.No.	Size	EUR
17158.01	5 mg	65,00
17158.02	25 mg	275,00

■ **Diisopropylfluorophosphate** pure

(DFP; Diisopropyl phosphorofluoridate)

$C_6H_{14}FPO_3$ M_r 184.15 $\blacklozenge$ CAS [55-91-4]



⚠ DANGER

H300-H310-H314-H330 $\blacklozenge$ GGVSE/ADR 6.1 I UN2927
 $\blacklozenge$ IATA 6.1 I UN2927 $\blacklozenge$ EINECS 200-247-6 $\blacklozenge$ WGK 2 $\blacklozenge$

HS 29199000

Storage temperature +2 °C to +8 °C

Acetylcholinesterase inhibitor. Highly toxic; do not inhale vapors and avoid skin contact. Protect from moisture.

Assay (GC) ca. 97.0 %

References:

1. Wilson, B.W. & Walker, C.R. (1974) *Proc. Natl. Acad. Sci. USA* **71**, 3194-8

Cat.No.	Size	EUR
77205.01	1 g	255,00

■ **E-64** research grade

(trans-Epoxy succinyl-L-Leucylamido-(4-Guanidino) butane; Epoxy[L-3-trans-Carboxy oxiran-2-Carbonyl]-L-Leu-Agmatin)
 $C_{15}H_{27}N_5O_5$ M_r 357.4 $\blacklozenge$ CAS [66701-25-5]

HS 29241900

Storage temperature -15 °C to -25 °C

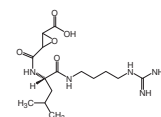
Inhibitor for papain and other cysteine (thiol) proteases. Effects on metastasis formation in mice (5).

Assay (HPLC) min. 99.0 %

References:

1. Hanada, K. et al. (1978) *Agric. Biol. Chem.* **42**, 523, 529
2. Varughese, K.J. et al. (1989) *Biochemistry* **28**, 1330-2
3. Nakao, H. et al. (1989) *Int. J. Biochem.* **21**, 139-42
4. Jani, J.P. et al. (1992) *Oncol. Res.* **4**, 59-63
5. Leto, G. et al. (1994) *In Vivo* **8**, 231-6

Cat.No.	Size	EUR
21100.01	5 mg	72,00
21100.02	25 mg	263,00



■ E-64 d

(EST; L-3-trans-ethoxycarbonyloxirane-2-carbonyl)-L-leucine-(3-methyl butyl)amide; (2S,3S)-trans-epoxysuccinyl-L-leucylamido-3-methylbutane ethyl ester)

$C_{17}H_{30}N_2O_5$ ♦ M_r 342.4 ♦ CAS [88321-09-9]

HS 29241900

Storage temperature -15 °C to -25 °C

Membrane permeable inhibitor of lysosomal cysteine proteases (Cathepsin B/H/L and Calpain) analog of E-64 c.

Assay (HPLC) min. 98.0 %

References:

1. Tamai, M. et al. (1986) J. Pharmacobio. Dyn. **9**, 672
2. Tamai, M. et al. (1987) Chem. Pharm. Bull. **35**, 1098
3. McGowan, E.B. et al. (1989) Biochem. Biophys. Res. Commun. **158**, 432
4. Incomata, M. et al. (1996) Arch. Biochem. Biophys. **328**, 129

Cat.No.	Size	EUR
21102.01	1 mg	80,00
21102.02	5 mg	285,00

■ Ethylmercury thiosalicylic acid-Na-salt research grade

(Merthiolate; Thimerosal; Thiomersal)

$C_9H_9HgO_2S_2Na$ ♦ M_r 404.8 ♦ CAS [54-64-8]



DANGER

H301-H310-H330-H373-H410

♦ MAK/TRK 0.01 ml/m³, 0.1 mg/m³ calculated

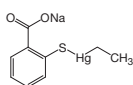
as mercury ♦ EG-Index 080-004-00-7 ♦ GGVSE/ADR 6.1 III UN2025 ♦

IATA 6.1 III UN2025 ♦ EINECS 200-210-4 ♦ WGK 3L ♦ HS 28521000

USP, Ph. Eur.

Assay (titr.) 97.0 - 101.0 %

Cat.No.	Size	EUR
11340.01	10 g	42,00
11340.02	25 g	88,00
11340.03	100 g	252,00



■ Imidazole research grade

$C_3H_4N_2$ ♦ M_r 68.08 ♦ CAS [288-32-4]



DANGER

H301-H314-H361d ♦ GGVSE/

ADR 8 III UN2923 ♦ IATA 8 III UN2923 ♦

EINECS 206-019-2 ♦ WGK 1L ♦ HS 29332990

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
26081.01	100 g	25,00
26081.02	500 g	79,00



■ Leupeptin

(Acetyl-L-leucyl-L-leucyl-L-argininal)

$C_{20}H_{38}N_6O_4 \cdot 1/2 H_2SO_4$ ♦ M_r 475.6 ♦ CAS [103476-89-7]



WARNING

H302-H332 ♦ WGK 1 ♦ HS 29241900

Storage temperature -15 °C to -25 °C

Inhibitor of serine and cysteine proteases.

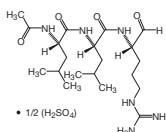
Assay (HPLC) min. 96.5 %

(sum of tautomeric isomers)

References:

1. Umezawa, H. (1976) Methods Enzymol. **45**, 678-83
2. Carlin, C. et al. (1994) J. Cell. Physiol. **160**, 427-34
3. Savory, P.J. & Rivett, A.J. (1993) Biochem. J. **289**, 45-8
4. Eto, I. & Bandy, M.D. (1990) Mol. Cell. Biochem. **94**, 19-36
5. Benistani, B. et al. (1994) Biochim. Biophys. Acta **1223**, 84-90

Cat.No.	Size	EUR
51867.02	10 mg	40,00
51867.03	50 mg	145,00

■ α₂-Macroglobulin from human plasma lyophil.

(α₂-M)

M_r 725 000 ♦ CAS [95568-41-5]

HS 35040090

Storage temperature -15 °C to -25 °C

Homogeneous by SDS-PAGE. Contains glycine as stabilizer. Major plasma protein in humans. Functions range from ion transport to the inhibition of proteinases. Inhibits most endoproteinases. Elevated levels are seen in clinical conditions such as cirrhosis, nephrotic syndrome, severe burns and diabetes (1). Package weight refers to weight of α₂-macroglobulin.

References:

1. Barrett, A.J. (1981) Methods Enzymol. **80**, 737-54
2. Travis, J. & Salvesen, G.S. (1983) Ann. Rev. Biochem. **52**, 655-709

Cat.No.	Size	EUR
28301.01	1 mg	89,00

■ PEFABLOC® SC

[(4-(2-Aminoethyl)benzenesulfonyl)fluoride-HCl]

$C_8H_{10}NSO_2F \cdot HCl$ ♦ M_r 239.7 ♦ CAS [30827-99-7]

HS 29214900

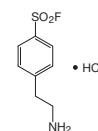
Storage temperature +2 °C to +8 °C

Protease inhibitor with major advantages over other inhibitors: Excellent stability at neutral pH. Ready solubility in aqueous buffers; LD₅₀ (oral) 2800 mg/kg. Broad specificity for serine proteases. Minimum effect on cell growth.

Purity (HPLC) min. 95.0 %

Pefabloc = registered Trademark of Pentapharm. Ltd.

Cat.No.	Size	EUR
31682.01	100 mg	44,00
31682.02	500 mg	185,00



■ Pepstatin A

(Isovaleryl-L-valyl-L-valyl-4-amino-3-hydroxy-6-methylheptanoyl-L-alanyl-4-amino-3-hydroxy-6-methylheptanoic acid; X-Val-Val-statyl-Ala-statin)

$C_{34}H_{63}N_9O_9$ ♦ M_r 685.9 ♦ CAS [26305-03-3]

EINECS 247-600-0 ♦ HS 29241900

Storage temperature +2 °C to +8 °C

Inhibitor of aspartic proteases, e.g. pepsin, renin, cathepsin D (1-3) and of retroviral proteases (4-7).

Assay (HPLC) min. 98.0 %

References:

1. Umezawa, H. (1976) Meth. Enzymol. **45**, 689-93
2. McCaffrey, G. & Jamieson, J.C. (1993) Comp. Biochem. Physiol. **104**, 91-4
3. Bailly, E. et al. (1991) Exp. Parasitol. **72**, 278-84
4. Baum, E.Z. et al. (1990) Proc. Natl. Acad. Sci. USA **87**, 10023-7
5. Grinde, B. et al. (1989) AIDS Res. Hum. Retroviruses **5**, 269-74
6. von der Helm, K. et al. (1989) FEBS Lett. **247**, 349-52
7. Katoh, I. et al. (1987) Nature **329**, 654-6

Cat.No.	Size	EUR
52682.02	5 mg	18,00
52682.03	25 mg	65,00
52682.04	100 mg	205,00

■ 1,10-Phenanthroline analytical grade

(o-Phenanthroline)

$C_{12}H_8N_2 \cdot H_2O$ ♦ M_r 198.2 ♦ CAS [5144-89-8]



DANGER

H301-H400-H410 ♦ EG-Index 613-092-00-8

♦ GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦

EINECS 200-629-2 ♦ WGK 3 ♦ HS 29339980

For the determination of iron in heme compounds. Metalloprotease inhibitor.

Assay (Titration) min. 99.0 %

References:

1. Cameron, B.F. (1970) Anal. Biochem. **35**, 515-7

Cat.No.	Size	EUR
32010.01	5 g	20,00
32010.02	25 g	55,00



■ **Phenylmethylsulfonyl fluoride** research grade

(PMSF; Benzylsulfonyl fluoride; α -Toluenesulfonyl fluoride)
 $C_9H_9FO_2S$ $\diamond$ M_r 174.19 $\diamond$ CAS [329-98-6]



DANGER

H301-H314 $\diamond$ GGVSE/ADR 8 II UN2923 $\diamond$ IATA 8 II UN2923 $\diamond$ EINECS 206-350-2 $\diamond$ WGK 1 $\diamond$

HS 29049095

Inhibits trypsin and chymotrypsin (1). Non-inhibitory to cholinesterase. Less toxic than diisopropylfluorophosphate (2). Inactivation of PMSF in buffer (3).

Assay (GC) min. 99.0 %
 MP 90 - 94 °C

References:

1. Prouty, W.F. & Goldberg, A.L. (1972) J. Biol. Chem. **247**, 3341-52
2. Fahrney, D.E. & Gold, A.M. (1963) J. Am. Chem. Soc. **85**, 997-1009
3. James, G.T. (1978) Anal. Biochem. **86**, 574-9

Cat.No.	Size	EUR
32395.02	5 g	21,00
32395.03	25 g	69,00
32395.04	100 g	198,00

■ **Phosphatase-Inhibitor-Mix I, powder**

DANGER

H302-H314-H361 $\diamond$ WGK 1 $\diamond$ HS 38220000

Mixture of 5 water-soluble inhibitors against acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, and protein-tyrosine phosphatase. Contains imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39050.01	1 vial	35,00
39050.02	5 vials	145,00
39050.03	10 vials	245,00

■ **Phosphatase-Inhibitor-Mix II, solution**

HS 38220000

Storage temperature +2 °C to +8 °C

Mixture of 7 different inhibitors dissolved in water, suitable for the inhibition of acid and alkaline phosphatases, protein phosphatases 2A, 2B and 2C, phosphoprotein phosphatase, protein-tyrosine phosphatase, and serine/threonine phosphatase.

Contains EDTA, β -glycerophosphate-disodium salt, imidazole, sodium fluoride, sodium molybdate, sodium-ortho-vanadate, and sodium tartrate. 1 ml solution is suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39055.01	1 vial	55,00
39055.02	5 vials	160,00
39055.03	10 vials	265,00

■ **Phosphoramidon** research grade

([N-(α -Rhamnopyranosyloxyhydroxyphosphinyl)-L-Leu-L-Trp-Na $\cdot$ 2H₂O])
 $C_{23}H_{32}N_3O_{10}PNa_2$ $\diamond$ M_r 587.5 $\diamond$ CAS [119942-99-3]

HS 29419000

Storage temperature +2 °C to +8 °C

Inhibitor for thermolysin and neutral endopeptidase-24.11 (ANP Degradation Enzyme). Inhibits the activity of 'Endothelin Converting Enzyme' (3-9).

Microbial product.

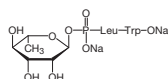
Store dry and protect from light!

Assay (HPLC) min. 90.0 %

References:

1. Suda, H. et al. (1973) J. Antibiotics **26**, 621
2. Roques, B.P. & Beaumont, A. (1990) Trends Pharmacol. Sci. **2**, 245-9
3. Gettins, P. (1988) J. Biol. Chem. **263**, 10208-11
4. Ikegawa, R. et al. (1990) Biochem. Biophys. Res. Commun. **171**, 669-75
5. Rae, G.A. et al. (1993) Eur. J. Pharmacol. **240**, 113-9
6. Patel, K.V. & Schrey, M.P. (1995) Br. J. Cancer **71**, 442-7
7. Fawzi, A.B. et al. (1994) Anal. Biochem. **222**, 342-50
8. Umekawa, T. et al. (1994) J. Pharmacol. Exp. Ther. **269**, 860-6
9. Ohnaka, K. et al. (1993) J. Biol. Chem. **268**, 26759-66

Cat.No.	Size	EUR
32753.01	5 mg	120,00

■ **Protease-Inhibitor Mix HP PLUS**

HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine proteases as well as aminopeptidases, Thermolysin and other microbial metalloendoproteases. It is especially recommended for purification of polyHis-tagged proteins and for other applications, where metal-chelators should be avoided. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and Phosphoramidon.

Supplied as a kit; each vial is provided with an extra vial of 1 ml DMSO. The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39107.01	1 vial	45,00
39107.02	5 vials	185,00
39107.03	10 vials	320,00

■ **Protease-Inhibitor Mix G**WGK 2 $\diamond$ HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 5 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine-, serine- and metalloproteases. Recommended for general applications and where the use of organic solvents should be avoided. Contains AEBSF, Aprotinin, E-64, Leupeptin and EDTA.

The content of 1 vial dissolved in 1 ml water results in a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39101.01	1 vial	26,00
39101.02	5 vials	110,00
39101.03	10 vials	195,00

■ **Protease-Inhibitor Mix B**WGK 1 $\diamond$ HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 5 protease inhibitors with broad range of activity against aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with bacterial extracts. Contains AEBSF, Bestatin, E-64, Pepstatin A and EDTA.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39105.01	1 vial	43,00
39105.02	5 vials	165,00
39105.03	10 vials	295,00

■ **Protease-Inhibitor Mix FY**

DANGER

H301-H410 $\diamond$ GGVSE/ADR 6.1 III UN2811 $\diamond$ $\diamond$ IATA 6.1 III UN2811 $\diamond$ EINECS 200-664-3 $\diamond$ WGK 1 $\diamond$

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 4 protease inhibitors with broad specificity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases. It is especially formulated for use with fungal and yeast extracts. Contains AEBSF, E-64, Pepstatin A, and 1,10-Phenanthroline.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39104.01	1 vial	35,00
39104.02	5 vials	150,00
39104.03	10 vials	275,00

■ **Protease-Inhibitor Mix P**

DANGER
H301-H410 ♦ GGVSE/ADR 6.1 III UN2811 ♦
IATA 6.1 III UN2811 ♦ EINECS 200-664-3 ♦ WGK 2 ♦

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 6 protease inhibitors with broad range of activity for the inhibition of aspartate-, cysteine-, serine-, and metallo proteases as well as aminopeptidases. It is especially formulated for use with plant extracts. Contains AEBSF, Bestatin, E-64, Leupeptin, Pepstatin A, and 1,10-Phenanthroline.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39103.01	1 vial	43,00
39103.02	5 vials	165,00
39103.03	10 vials	295,00

■ **Protease-Inhibitor Mix M**

EINECS 200-664-3 ♦ WGK 1 ♦ HS 38220000

Storage temperature -15 °C to -25 °C

Mixture of 6 protease inhibitors with broad spectrum of activity for the inhibition of aspartate-, cysteine-, and serine-proteases as well as aminopeptidases (metallo-proteases). It is especially formulated for use with extracts from mammalian tissue, but can also be used with other extracts. It is free of EDTA and contains AEBSF, Aprotinin, Bestatin, E-64, Leupeptin and Pepstatin A.

Supplied as a kit: each vial is provided with an extra vial of 1 ml DMSO.

The content of 1 vial dissolved in 1 ml DMSO will give a 100-fold concentrate, suitable for the treatment of 100 ml extract.

Cat.No.	Size	EUR
39102.01	1 vial	49,00
39102.02	5 vials	195,00
39102.03	10 vials	325,00

■ **Protease-Inhibitor Mix HP**

HS 38220000

Storage temperature -15 °C to -25 °C

Special mixture of 4 water-soluble protease inhibitors with broad specificity for the inhibition of cysteine- and serine-proteases. Free of metal-chelators. Recommended for purification of polyHis-tagged proteins and for other applications where metal-chelators should be avoided. Contains AEBSF, Aprotinin, E-64, and Leupeptin.

The content of 1 vial dissolved in 1 ml water will give a 100-fold concentrate suitable for the treatment of 100 ml tissue extract.

Cat.No.	Size	EUR
39106.01	1 vial	26,00
39106.02	5 vials	110,00
39106.03	10 vials	195,00

■ **Proteasome Inhibitor MG-115**

(Carbobenzoxy-L-leucyl-L-leucyl-L-norvalinal; Z-Leu-Leu-Nva-H (aldehyde))

$C_{25}H_{39}N_3O_5$ ♦ M_r 461.59

HS 29420000

Storage temperature -15 °C to -25 °C

Potent reversible Proteasome inhibitor.

Purity (HPLC) min. 90.0 %

References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Rock, K.L. et al. (1994) Cell **78**, 761
3. Vinitsky, A. et al. (1992) Biochemistry **31**, 9421
4. Palombella, V.J. et al. (1994) Cell **78**, 773

Cat.No.	Size	EUR
33767.01	1 mg	55,00
33767.02	5 mg	195,00

■ **Proteasome Inhibitor MG-132**

(Carbobenzoxy-L-leucyl-L-leucyl-leucinal; Z-Leu-Leu-Leu-H (aldehyde))

$C_{26}H_{41}N_3O_5$ ♦ M_r 475.62 ♦ CAS [133407-82-6]

HS 29420000

Storage temperature -15 °C to -25 °C

Potent, reversible and cell-permeable Proteasome inhibitor.

Assay (HPLC) min. 90.0 %

References:

1. Saito, Y. et al. (1990) Neurosci. Lett. **120**, 1
2. Jensen, T.J. et al. (1995) Cell **83**, 129
3. Lee, D.H. a. Goldberg, A.L. (1996) J. Biol. Chem. **271**, 27280

Cat.No.	Size	EUR
33766.01	1 mg	35,00
33766.02	5 mg	115,00

■ **Staurosporine research grade**

$C_{28}H_{26}N_4O_3$ ♦ M_r 466.5 ♦ CAS [62996-74-1]



DANGER
H301-H331 ♦ GGVSE/ADR 6.1 II UN2811 ♦
IATA 6.1 II UN2811 ♦ WGK 2 ♦ HS 35040090

Storage temperature -15 °C to -25 °C

Potent inhibitor of phospholipid/ Ca^{2+} dependent and cyclic nucleotide dependent protein kinases (1, 2, 3).

Inhibits also platelet aggregation (4).

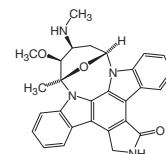
Protect from light!

Assay (HPLC) min. 95.0 %

References:

1. Tamaoki, T. et al. (1986) Biochem. Biophys. Res. Commun. **135**, 397
2. Oka, S. et al. (1986) Agric. Biol. Chem. **50**, 2723
3. Lazdins, J. et al. (1987) Int. J. Cancer **40**, 846
4. Hidaka, H. et al. (1984) Biochemistry **23**, 5036

Cat.No.	Size	EUR
35385.02	500 µg	180,00

■ **Thapsigargin research grade**

$C_{34}H_{50}O_{12}$ ♦ M_r 650.8 ♦ CAS [67526-95-8]



WARNING
H302-H332-H341 ♦ HS 29419000
Storage temperature -15 °C to -25 °C

Tumor-promoting sesquiterpene lactone. Induces the release of intracellular calcium stores by inhibition of the ER/microsomal Ca^{2+} ATPase.

Assay (HPLC) min. 95.0 %

Assay (TLC) homogeneous

References:

1. Wong, W.E. et al. (1993) Biochem. **289**, 71-9
2. Low, A.M. et al. (1993) Eur. J. Pharmacol. **230**, 53-62
3. Charlesworth, A. & Rozengurt, E. (1994) J. Biol. Chem. **269**, 32528-35
4. Foskett, J.K. & Wong, D.C. (1994) J. Biol. Chem. **269**, 31525-32
5. Furuya, Y. et al. (1994) Cancer Res. **54**, 6167-75
6. Palmer, F.P. et al. (1994) Biochim. Biophys. Acta **1215**, 190-7

Cat.No.	Size	EUR
36000.01	1 mg	85,00

■ **Trypsin inhibitor from soybean min. 13 000 U/mg lyophil.**

M_r ca. 22 000 ♦ CAS [9035-81-8]

EINECS 232-906-9 ♦ WGK 1 ♦ HS 35040090

Storage temperature +2 °C to +8 °C

Salt-free. Trypsin is inhibited in a molar ratio of 1:1. Inhibits as well chymotrypsin (2), plasmin, kallikrein, thrombin and other proteolytic enzymes.

Unit definition: 1 IU (inhibitor units) inhibits 1 U trypsin as defined by cleavage of 1 µmole BAEE (N-benzoyl-L-arginine ethyl ester) per minute.

References:

1. Rachis, J.J. et al. (1962) Arch. Biochem. Biophys. **98**, 471-8
2. Bidlingmeyer, U. et al. (1972) Biochemistry **11**, 3303-10

Cat.No.	Size	EUR
37329.01	250 mg	53,00

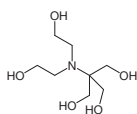
Buffering Substances

■ 2-[Bis(2-hydroxyethyl)amino]-2-(hydroxymethyl)-1,3-propanediol analytical grade

(Bis(2-hydroxyethyl)imino-tris(hydroxy methyl) methane; BISTRIS)

$C_8H_{19}NO_5$ ♦ M_r 209.24 ♦ CAS [6976-37-0]

EINECS 230-237-7 ♦ WGK 1 ♦ HS 29221985



Buffering substance.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
280 nm	max. 0.1
Iron (Fe)	max. 5 ppm
Lead (Pb)	max. 3 ppm
pH 10 % in water	9.4 - 10.4
pKa 20	6.46

References:

1. Daabo, M. & Bates, R. (1970) J. Phys. Chem. **74**, 702-5

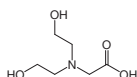
Cat.No.	Size	EUR
15107.03	100 g	52,00
15107.04	250 g	121,00

■ N,N-Bis(2-hydroxyethyl)glycine analytical grade

(BICIN)

$C_6H_{13}NO_4$ ♦ M_r 163.2 ♦ CAS [150-25-4]

EINECS 205-755-1 ♦ WGK 1 ♦ HS 29224985



Buffering substance.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.08
280 nm	max. 0.06
Heavy metals (Pb)	max. 0.0005 %
pH 10 % in water	4.6 - 5.1
pKa 20	8.3

References:

1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
15105.02	100 g	39,00
15105.03	250 g	76,00

■ Boric acid analytical grade

H_3BO_3 ♦ M_r 61.83 ♦ CAS [10043-35-3]



DANGER

H360Fd ♦ Repr. 1B ♦ MAK/TRK 0.5 mg/m³ ♦ EG-Index 005-007-00-2 ♦ EINECS 233-139-2 ♦ WGK 1L ♦ HS 28100090

Ph.Eur. Buffering substance.

Assay (titr.)	99.0 - 100.5 %
Heavy metals (Pb)	max. 15 ppm

Cat.No.	Size	EUR
15165.02	250 g	15,00
15165.01	1 kg	29,00

■ Glycine analytical grade

(Aminoacetic acid; Glycocoli)

$C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm



Cat.No.	Size	EUR
23390.02	500 g	15,00
23390.04	1 kg	23,00
23390.03	5 kg	89,00

■ Glycine premium grade

(Aminoacetic acid; Glycocoli)

$C_2H_5NO_2$ ♦ M_r 75.07 ♦ CAS [56-40-6]

EINECS 200-272-2 ♦ WGK 1L ♦ HS 29224985

USP, Ph.Eur.

Assay (titr.)	98.5 - 101.0 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
23395.01	500 g	25,00
23395.02	1 kg	38,00
23395.03	5 kg	135,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade

(HEPES)

$C_8H_{18}N_2O_4S$ ♦ M_r 238.3 ♦ CAS [7365-45-9]

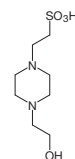
EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.1
280 nm	max. 0.08
Heavy metals (Pb)	max. 10 ppm
pH 10 % in water	5.0 - 6.5

References:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77
2. Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
3. Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6



Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid ·Na-salt research grade

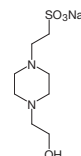
(HEPES-Na-salt)

$C_8H_{17}N_2O_4SNa$ ♦ M_r 260.3 ♦ CAS [75277-39-3]

EINECS 278-169-7 ♦ WGK 1 ♦ HS 29335995

pKa 20 = 7.55

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.15
280 nm	max. 0.1
pH 10 % in water	9.5 - 11.5



Cat.No.	Size	EUR
25249.03	100 g	50,00
25249.05	250 g	120,00
25249.04	1 kg	380,00

■ Imidazole research grade

$C_3H_4N_2$ ♦ M_r 68.08 ♦ CAS [288-32-4]



DANGER

H301-H314-H361d ♦ GGVSE/ADR 8 III UN2923 ♦ IATA 8 III UN2923 ♦

EINECS 206-019-2 ♦ WGK 1L ♦ HS 29332990

Assay (GC) min. 99.0 %

Cat.No.	Size	EUR
26081.01	100 g	25,00
26081.02	500 g	79,00



Morpholinoethane sulfonic acid analytical grade

(MES)

 $C_6H_{13}NO_3S$ ♦ M_r 195.24 ♦ CAS [4432-31-9]

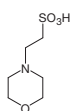
EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.1
280 nm	max. 0.1
pH 10 % in water	2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4



Cat.No.	Size	EUR
29834.02	100 g	42,00
29834.04	500 g	165,00
29834.03	1 kg	305,00

Morpholinoethane sulfonic acid, monohydrate

analytical grade

(MES)

 $C_6H_{13}NO_3S \cdot H_2O$ ♦ M_r 213.25 ♦ CAS [145224-94-8]

EINECS 224-632-3 ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.05
280 nm	max. 0.02
pH 1 % in water	2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29830.01	100 g	39,00
29830.02	250 g	72,00
29830.03	1 kg	195,00
29830.06	500 g	110,00

Morpholinopropane sulfonic acid analytical grade

(MOPS)

 $C_7H_{15}NO_3S$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

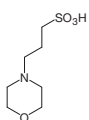
EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
260 nm	max. 0.1
280 nm	max. 0.08
pH 10 % in water	3.0 - 5.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68



Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00

Piperazine-N,N'-bis(2-ethane sulfonic acid) analytical grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

 $C_8H_{18}N_2O_6S_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

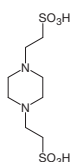
HS 29335995

Buffering substance pKa 20 = 6.8.

Assay (titr.)	min. 99 %
A 1 cm/2 % in NaOH	
250 nm	max. 0.2
Heavy metals (Pb)	max. 0.0005 %

References:

- Good, N.E. et al. (1966) Biochemistry **5**, 467-77



Cat.No.	Size	EUR
32981.01	50 g	31,00
32981.02	250 g	93,00

Potassium dihydrogen phosphate anhydrous

analytical grade

(Potassium phosphate dibasic (sec. potassium phosphate); Potassium phosphate monobasic (prim. potassium phosphate))
 KH_2PO_4 ♦ M_r 136.1 ♦ CAS [7778-77-0]

EINECS 231-913-4 ♦ WGK 1 ♦ HS 28352400

Biochemical and enzyme standard. Buffering substance according to Sørensen. 9.072 g in 1 liter water = 1/15 M. Tested for use in tissue culture.

Assay (titr.)	min. 99.0 %
pH 5 % in water	4.1 - 4.5
Heavy metals (Pb)	max. 10 ppm
Nitrogen (N)	max. 10 ppm

Cat.No.	Size	EUR
26870.01	500 g	27,00

di-Potassium hydrogen phosphate anhydrous

analytical grade

(sec. Potassium phosphate; Potassium phosphate dibasic (sec. potassium phosphate))
 K_2HPO_4 ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Assay	min. 99.0 %
pH 5 % in water	8.7 - 9.3
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
26887.01	500 g	35,00

Sodium acetate analytical grade

(Acetic acid-Na-salt)

 $C_2H_3O_2 \cdot Na$ ♦ M_r 82.0 ♦ CAS [127-09-3]

EINECS 204-823-8 ♦ WGK 1L ♦ HS 29152900

pKa 25 = 4.76

Assay (titr.)	min. 98.5 %
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
21249.02	500 g	22,00

Sodium bicarbonate research grade

(Sodium hydrogen carbonate)

 $NaHCO_3$ ♦ M_r 84.0 ♦ CAS [144-55-8]

EINECS 205-633-8 ♦ WGK 1 ♦ HS 28363000

USP, Ph.Eur. Tested for use in tissue culture. Buffering substance.

Assay (titr.)	99.0 - 100.5 %
pH 5 % in water	7.9 - 8.4
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size	EUR
30180.02	1 kg	32,00

Sodium dihydrogen phosphate-2H₂O research grade

(Sodium phosphate monobasic (prim. sodium phosphate))

 $NaH_2PO_4 \cdot 2H_2O$ ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.)	98.0 - 100.5 %

Cat.No.	Size	EUR
30186.02	1 kg	32,00

di-Sodium hydrogen phosphate-2H₂O analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

 $Na_2HPO_4 \cdot 2H_2O$ ♦ M_r 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sørensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.)	98.0 - 100.5 %
pH 5 % solution	9.0 - 9.2
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
30200.01	500 g	24,00

■ **Tris(hydroxymethyl)aminomethane** analytical grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

 $C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]**WARNING**

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Buffer quality for biological and enzymatic research.

Assay (titr.)	min. 99.9 %
A 1 cm/10 % in water	
235 nm	max. 0.60
260 nm	max. 0.15
280 nm	max. 0.15
430 nm	max. 0.07
Heavy metals (Pb)	max. 1 ppm
pH (5 % in water)	10.0 - 11.5

Cat.No.	Size	EUR
37180.02	100 g	15,00
37180.03	500 g	35,00
37180.05	1 kg	59,00
37180.04	2,5 kg	135,00

■ **Tris(hydroxymethyl)aminomethane** molecular biology grade

(TRIS)

 $C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]**WARNING**

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

DNase, RNase, Protease not detected.

Assay (titr.)	min. 99.9 %
Heavy metals (Pb)	max. 1 ppm
Iron	max. 1 ppm
Arsenic (As)	max. 1 ppm
Magnesium (Mg)	max. 1 ppm

Cat.No.	Size	EUR
37186.01	100 g	18,00
37186.02	500 g	49,00
37186.03	1 kg	77,00
37186.04	2,5 kg	186,00

■ **Tris(hydroxymethyl)aminomethane** research grade

(TRIS; THAM; Trometamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

 $C_4H_{11}NO_3$ ♦ M_r 121.1 ♦ CAS [77-86-1]**WARNING**

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

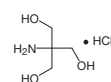
USP. Suitable for preparative purposes and for chromatography.

Assay (titr.)	min. 99.0 %
A 1 cm/40 % in water	
290 nm	max. 0.2
pH (5 % in water)	10.0 - 11.5
Heavy metals (Pb)	max. 10 ppm

Cat.No.	Size	EUR
37190.01	250 g	17,00
37190.02	1 kg	44,00
37190.03	5 kg	187,00

■ **Tris(hydroxymethyl)aminomethane-hydrochloride** research grade

(Tris-hydrochloride)

 $C_4H_{11}NO_3 \cdot HCl$ ♦ M_r 157.6 ♦ CAS [1185-53-1]**WARNING**

H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

For enzymology

Assay (titr.)	min. 99.0 %
A 1 cm/10 % in water	
230 nm	max. 0.1
260 nm	max. 0.05
280 nm	max. 0.03
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	3.5 - 5.0

Cat.No.	Size	EUR
37192.01	100 g	21,00
37192.02	500 g	77,00
37192.03	2,5 kg	310,00

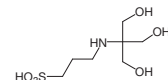
■ **N-Tris(hydroxymethyl)methyl-3-aminopropane sulfonic acid** analytical grade

(TAPS)

 $C_7H_{17}NO_6S$ ♦ M_r 243.28 ♦ CAS [29915-38-6]

EINECS 249-954-1 ♦ WGK 1 ♦ HS 29221985

MP 238 - 245 °C (dec.). pKa 20 = 8.4. Buffering substance.



Assay (titr.)	min. 99 %
A 1 cm/10 % in water	
230 nm	max. 0.2
260/280 nm	max. 0.07
Heavy metals (Pb)	max. 10 ppm
pH (10 % in water)	4.5 - 6.5

References:1. Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
37194.03	100 g	39,00

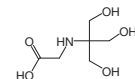
■ **N-Tris(hydroxymethyl)methylglycine** analytical grade

(Tricine)

 $C_6H_{13}NO_5$ ♦ M_r 179.17 ♦ CAS [5704-04-1]

EINECS 227-193-6 ♦ WGK 1 ♦ HS 29221985

MP 179 - 187 °C; pKa 20 = 8.15. Buffering substance (1). Non-toxic substitute for barbital (2).



Assay (titr.)	min. 99.0 %
A 1 cm/0.1 M in water	
260 nm	max. 0.04
280 nm	max. 0.02
pH 10 % in water	4.6 - 5.2
Heavy metals (Pb)	max. 5 ppm
Iron (Fe)	max. 5 ppm

References:1. Good, N.E. et al. (1966) Biochemistry **5**, 467-772. Monihony, J.F. et al. (1978) Clin. Chem. **24**, 1825-7

Cat.No.	Size	EUR
37195.01	25 g	17,00
37195.02	100 g	42,00
37195.03	500 g	150,00

Products for Sample Preparation:

see special chapter at p. 123

Microscopy

SERVA
Electrophoresis

Embedding	360
Embedding in Electron Microscopy	360
Embedding in Light Microscopy	361
Fixation	363
Fixation in Electron Microscopy	363
Fixation in Light Microscopy	364
Dehydration	365
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Stains	368
Stains in Electron Microscopy	368
Stains in Light Microscopy	369
Additives and Auxiliaries	373

Study of biological specimens by light or electron microscopy requires several steps of sample preparation. SERVA offers a wide range of high quality reagents for these manipulations.

The major operations are:

- Fixation
- Dehydration
- Embedding
- Cutting
- Staining/Contrasting

Embedding

For preparing sections of biological specimens with a microtome, the samples must be embedded in a suitable medium. For electron microscopy SERVA offers a comprehensive range of embedding media, which can be used for a broad variety of specimens.

Permanent specimens in histology/light microscopy are prepared by embedding in non-aqueous or aqueous media. Many of the traditional embedding media contain hazardous chemicals like xylene or toluol. SERVA offers for many common embedding media safe alternatives without solvents, phenol or other compounds.

Embedding in Electron Microscopy

■ ARALDITE® Hardener HY 964 pract.

CAS [25377-73-5]

WARNING
H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171990
Contains dodecyl succinic anhydride as the main component.

ARALDITE® = registered trademark of Huntsman Advanced Materials Europa

Cat.No.	Size	EUR
13826.01	100 g	15,00
13826.02	1 kg	62,00

■ Benzyl dimethylamine research grade

(BDMA; N, N-Dimethylbenzylamine)
C₉H₁₃N ♦ M_r 135.2 ♦ CAS [103-83-3]

DANGER
H226-H302-H312-H314-H332-H412
♦ EG-Index 612-074-00-7 ♦ GGVSE/
♦ HS 29214900

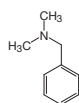
ADR 8 II UN2619 ♦ IATA 8 II UN2619 ♦ EINECS 203-149-1 ♦ WGK 2L ♦ HS 29214900

Catalyst of very low viscosity for epoxy-polyester embedding in electron microscopy.

References:

1. Freeman, J.A. & Spurlock, B.O. (1962) J. Cell Biol. **13**, 137-43

Cat.No.	Size	EUR
14835.01	10 ml	19,50



■ D.E.R.® 736 pract.

(ERL-4206 plasticizer)
CAS [9072-62-2]

WARNING
H319 ♦ WGK 1L ♦ HS 39073000

Shorter chain than D.E.R.® 732, lower viscosity, gives less flexible blocks. Epoxy equivalent weight 175 - 205; viscosity 0.03 - 0.06 Pa.s at 25 °C.

Used in electron microscopy.

Density 1.129 - 1.150

D.E.R.® is a registered trademark of Dow Chemical Company, USA.

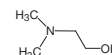
References:

1. Kushida, H. (1966) J. Electron. Microsc. **16**, 278-80

Cat.No.	Size	EUR
18247.01	100 ml	27,00

■ Dimethylaminoethanol research grade

(N,N-DMAE; S-1; Dimethylethanolamine)
C₄H₁₁NO ♦ M_r 89.1 ♦ CAS [108-01-0]



DANGER
H226-H302-H312-H314-H332 ♦ EG-Index 603-047-00-0 ♦ GGVSE/ADR 8 II UN2051 ♦ IATA 8 II UN2051 ♦ EINECS 203-542-8 ♦ WGK 1L ♦ HS 29221985

Slightly yellow catalyst of very low viscosity, „accelerator“ for epoxy-polyester condensation (1). Inhibits ethanolamine phosphokinase (2). Also used for electron microscopy.

Assay (GC) min. 99.0 %

References:

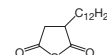
1. Spurr, A. (1969) J. Ultrastruct. Res. **26**, 31-43
2. Weinhold, P.A. & Rethy, V.B. (1972) Biochim. Biophys. Acta **276**, 143-54

Cat.No.	Size	EUR
20130.04	5 ml	11,50
20130.02	100 ml	20,00

■ 2-Dodecenylsuccinic acid anhydride pract.

(DDSA; 2-Dodecenylsuccinic anhydride;
EPON hardener DDSA)

C₁₆H₂₆O₃ ♦ M_r 266.38 ♦ CAS [25377-73-5]



WARNING
H315-H319-H335 ♦ EINECS 246-917-1 ♦ WGK 2 ♦ HS 29171990

Hardener for epoxy resins.

Cat.No.	Size	EUR
20755.01	100 g	13,00
20755.02	1 kg	49,00

■ Embedding Medium ERL-4221D

(Epoxy cyclohexylmethyl-3,4-epoxycyclohexylcarboxylate; Epoxy embedding medium; Spurr Embedding Medium)
C₁₄H₂₀O₄ ♦ M_r 252 ♦ CAS [2386-87-0]

WARNING
H317 ♦ EINECS 219-207-4 ♦ WGK 1L ♦ HS 39073000

Diepoxide. Cycloaliphatic epoxy resin. Embedding medium for electron microscopy. Less toxic substitute for the classical Spurr embedding medium ERL 4206.

Epoxy equivalent weight 126 - 135
Viscosity (25 °C) 220 - 250 mPa.s
Density (g/ml) 1.159 - 1.174

Cat.No.	Size	EUR
21041.01	100 ml	33,00
21041.02	250 ml	63,00
21041.03	1 L	214,00

■ Glycid ether 100 for electron microscopy

(1,2,3-Propanetriol glycidyl ether; GE 100; Epon 812)
M_r average 306 ♦ CAS [90529-77-4]



WARNING
H315-H319 ♦ EINECS 292-011-4 ♦ WGK 1L ♦ HS 39073000

Mixture of aliphatic di- and triepoxides. Epoxy resin of low viscosity (ca. 100-200 mPa·s at 25 °C) (1). Combination with ARALDITE® (2). With D.E.R.® 736 (3).

Epoxy equivalent 135 - 154 g/mol
Viscosity (25 °C) 100 - 200 mPa·s
Chlorine (total) 10 - 13 %

ARALDITE® = registered trademark of Huntsman Advanced Materials Europe.

D.E.R.® = registered trademark of Dow Chemical Company.

References:

1. Luft, J.H. (1961) J. Biophys. Biochem. Cytol. **9**, 409-14
2. Coulter, H.D. (1967) J. Ultrastruct. Res. **20**, 346-55
3. Kushida, H. (1967) J. Electron Microsc. **16**, 278-80

Cat.No.	Size	EUR
21045.01	100 ml	14,00
21045.02	500 ml	30,00

■ Methylnadic anhydride pract.

(NMA; EPON hardener MNA; Methylbornene-2,3-dicarboxylic anhydride; Nadic Methyl anhydride)

C₁₀H₁₀O₃ ♦ M_r 178.19 ♦ CAS [25134-21-8]



DANGER
H302-H315-H319-H334-H335 ♦ EG-Index 607-106-00-1
♦ GGVSE/ADR 8 III UN1760 ♦ IATA 8 III UN1760 ♦

EINECS 246-644-8 ♦ WGK 1 ♦ HS 29172000

Hardener component for polyester and epoxy resins, for example EPON embedding.

Viscosity 170 - 300 mPa·s at 25 °C
d₂₀ °C 1.20 - 1.25
Refractive index 1.5040 - 1.5080

Cat.No.	Size	EUR
29452.01	100 ml	15,00
29452.02	250 ml	26,00
29452.03	1 L	87,00

■ Modified SPURR Embedding Kit



DANGER
H226-H302-H312-H314-H317-H332-H335 ♦
HS 39073000

Excellent embedding medium for tissues with dense structures like minerals and bones as well as for highly vacuolated plant cells and tissue with hard lignified cell walls. The original composition introduced by Spurr contained the highly toxic ERL-4206 (Vinylcyclohexene dioxide) which is replaced here by the much less toxic epoxy component ERL-4221 D.

One kit contains:
ERL-4221 D (cat. no. 21041) 250 g
NSA (cat. no. 30812) 650 g
D.E.R.® 736 (cat. no. 18247) 200 g
DMAE (cat. no. 20130) 25 g

D.E.R.® = trademark of Dow Chemical Company.

Cat.No.	Size	EUR
21050.01	1 kit	125,00

■ Nonenylsuccinic anhydride pure

(NSA; ERL-4206 hardener)
C₁₃H₂₀O₃ ♦ M_r 224.3 ♦ CAS [28928-97-4]



WARNING
H315-H319-H335 ♦ EINECS 242-317-8 ♦ WGK 1 ♦ HS 29171900

Especially purified for electron microscopy. Hardener component for SPURR embedding.

Cat.No.	Size	EUR
30812.01	250 ml	29,00
30812.02	1 L	84,00

■ Renlam® M-1

(ARALDITE® CY 212)



WARNING
H315-H317-H319-H411 ♦ GGVSE/ADR 9 III UN3082 ♦
IATA 9 III UN3082 ♦ WGK 2 ♦ HS 29109000

Solvent-free, modified bisphenol A epoxy resin. Epoxy equivalent weight 232-250. Yields 3-dimensional crosslinking blocks.

Non-toxic substitute for ARALDITE® CY 212, which contained dibutyl phthalate. Renlam® M-1 has identical properties as ARALDITE® CY 212 and can therefore be used in all electron microscopy protocols in exactly the same way as ARALDITE® CY 212.

Viscosity 1400 - 1800 mPa·s/25 °C
Epoxy number 4.10 - 4.35 Eq./kg

Renlam® + ARALDITE® = registered trademark of Huntsman Advanced Materials Europe

Cat.No.	Size	EUR
13825.01	250 g	19,00
13825.02	1 kg	51,00

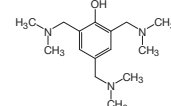
■ 2,4,6-Tris(dimethylaminomethyl)phenol pract.

(EPON accelerator DMP-30; ARALDITE® Accelerator DY 964)

C₁₅H₂₇N₃O ♦ M_r 265.4 ♦ CAS [90-72-2]



WARNING
H302-H315-H319 ♦ EG-Index 603-069-00-0 ♦
EINECS 202-013-9 ♦ WGK 1L ♦ HS 29215990



Accelerator for epoxy polymerization.

Density (20 °C) 0.96 - 1.0

Cat.No.	Size	EUR
36975.01	100 ml	15,00
36975.03	250 ml	29,00

Embedding in Light Microscopy

■ Canada balsam for microscopy

CAS [8007-47-4]

EINECS 232-362-2 ♦ WGK 2L ♦ HS 13019000

Density (20 °C) 0.97 - 1.0

Refractive index (20 °C) 1.520 - 1.525

Cat.No.	Size	EUR
26896.02	100 ml	42,50

■ DePeX



DANGER
H226-H315 ♦ GGVSE/ADR 3 III UN1307
♦ IATA 3 III UN1307 ♦ WGK 2 ♦

HS 38220000

Mounting medium for histology. Refractive index 1.52 - 1.53. Neutral solution of polystyrene and plasticizers in xylene.

Cat.No.	Size	EUR
18243.01	100 ml	14,00
18243.02	500 ml	52,00

■ Fluoromount for microscopy



WARNING
H226-H315-H319-H335-H411 ♦ GGVSE/
ADR 3 III UN1866 ♦ IATA 3 III UN1866 ♦ WGK 2 ♦

HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy, based on polyacrylate in xylene.

Refractive index (20 °C) 1.454 - 1.457

References:

1. Gurr, E. (1951) J.R. Nav. Med. Serv. **37**, 133-40
2. De Jong, J.H. (1978) Stain Technol. **53**, 169-72

Cat.No.	Size	EUR
21644.01	50 ml	40,00

■ Fluoromount W for microscopy, aqueous solution

WGK 2S ♦ HS 38220000

Storage temperature +2 °C to +8 °C

Non-fluorescent mounting medium for microscopy. Ideal for F.I.T.C.

Cat.No.	Size	EUR
21634.01	50 ml	99,00

■ Gelatin

CAS [9000-70-8]

EINECS 232-554-6 ♦ WGK 1 ♦ HS 35030010

Ph. Eur. Special quality for bacteriology. A 5 % solution liquefies at 25 - 30 °C and begins to set at 19 - 25 °C.

Cat.No.	Size	EUR
22151.02	500 g	34,00

■ Glycerol-albumen pract.

WGK 1 ♦ HS 38220000

Glycerol-egg albumin 1:1. Mounting medium for microscopy; contains thymol as preservative.

Cat.No.	Size	EUR
20918.03	250 ml	32,00

■ Glycerol from plant

(Glycerin)

C₃H₈O₃ ♦ M_r 92.09 ♦ CAS [56-81-5]

EINECS 200-289-5 ♦ WGK 1L ♦ HS 29054500

Ph. Eur.

Assay (titr.) min. 99.5 %
Heavy metals (Pb) max. 5 ppm
Refractive index 1.470 - 1.475



Cat.No.	Size	EUR
23176.01	1 L	33,50

■ Glycerol from plant 87 %

C₃H₈O₃ ♦ M_r 92.09 ♦ CAS [56-81-5]

HS 29054500

Refractive index 1.449 - 1.455

Cat.No.	Size	EUR
23177.01	1 L	27,50

■ Glycerol gelatin for microscopy



DANGER

H314-H341 ♦ WGK 1 ♦ HS 38220000

Cat.No.	Size	EUR
23310.02	100 g	27,00

■ Glycerol gelatin after Kaiser phenol-free

HS 38220000

Universal aqueous slide mounting medium for microscopy. The recipe is according to the well-known Kaiser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative. Contains ca. 40 % glycerol and ca. 7 % gelatin.

Refractive index 1.46 - 1.48

Cat.No.	Size	EUR
23311.01	50 ml	18,00

■ Glycerol gelatin after Kisser phenol-free

HS 38220000

Aqueous slide mounting medium for microscopy, especially suitable for preparation of pollen. The recipe is according to the well-known Kisser's glycerol jelly. However, it does not contain phenol, making it a safe, non-hazardous alternative.

Contains ca. 40 % glycerol and ca. 13 % gelatin.

Refractive index 1.46 - 1.48

Cat.No.	Size	EUR
23312.01	15 ml	15,00

■ Histoplast-S

HS 27129099

Special embedding medium for histology. Smooth sections can be obtained without cooling the knife or preparation. Histoplast-S is ductile and not brittle so that sections of thickness down to 4 µm are attainable without deformation. Use of Histoplast-S does not necessitate any change in staining or embedding techniques.

MP 55 - 57 °C

Assay (Paraffin) 99.47 %

Cat.No.	Size	EUR
24895.01	1 kg	41,00

■ Includal A

HS 38220000

Universal aqueous, self-hardening slide mounting medium for microscopy. It is pH-neutral and suitable for all standard staining methods.

Refractive index 1.51 - 1.53

Cat.No.	Size	EUR
23314.01	10 ml	13,00

■ Includal AC after Hoyer

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is especially suitable for entomological and botanical specimens.

Refractive index 1.41 - 1.43

Cat.No.	Size	EUR
23315.01	30 ml	15,00

■ Includal CB for microscopy

HS 38220000

Synthetic canada balsam. Non-aqueous, non evanescent mounting medium for microscopy. Xylene-free alternative for Malinol, Renohistol. If necessary, the viscosity can be adjusted with the included thinner.

Refractive index 1.51

Cat.No.	Size	EUR
23324.01	100 ml	42,00

■ Includal DMHF

HS 38220000

Aqueous, rapidly self-hardening slide mounting medium for microscopy based on dimethyl hydantoin formaldehyde resin. For use in entomology.

Refractive index 1.38 - 1.40

Cat.No.	Size	EUR
23320.01	10 ml	19,00

■ Includal PVA

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy. It is adjusted to be slightly acidic and clarifying. Especially suitable for entomological and histological specimens.

Refractive index 1.43 - 1.47

Cat.No.	Size	EUR
23316.01	10 ml	14,00

■ Includal PVL

HS 38220000

Aqueous, self-hardening slide mounting medium for microscopy on polyvinyl alcohol basis. It is adjusted to be slightly acidic for use in entomology.

Refractive index 1.42 - 1.44

Cat.No.	Size	EUR
23318.01	10 ml	16,00

■ **Includal PVLA**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinyl alcohol basis for use in entomology. It is rapidly self-hardening with higher solids content.

Refractive index 1.41 – 1.43

Cat.No.	Size	EUR
23319.01	10 ml	16,00

■ **Includal PVP**

HS 38220000

Aqueous slide mounting medium for microscopy on polyvinylpyrrolidone basis. It is pH neutral and rapidly self-hardening. Especially suitable for sensitive staining.

Refractive index 1.42 – 1.44

Cat.No.	Size	EUR
23317.01	10 ml	18,00

■ **Sorbitol gelatin after Clemens phenol-free**

HS 38220000

Glycerol-free aqueous slide mounting medium for microscopy, especially suitable for nuclear staining with Hematoxylin as well as lipid and metachromatic staining. It does not contain phenol, making it a safe, non-hazardous alternative.

Refractive index 1.44 – 1.47

Cat.No.	Size	EUR
23313.01	15 ml	12,00

■ **Sorbitolin**

HS 38220000

Glycerol substitute. Non-crystallizing sorbitol solution (74 %).

Refractive index 1.464
Density (20 °C) 1.28

Cat.No.	Size	EUR
23323.01	100 ml	11,00

Fixation

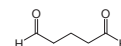
The major goal of fixation of biological samples is the optimal preservation of all natural structures. Fixation is necessary to prevent:

- 1) post-mortal changes of the cell caused by autolysis
- 2) loss of low- and high-molecular weight substances during the following treatments (dehydration, embedding, staining) and
- 3) possible structural changes due to treatment with heavy metals.

Fixation in Electron Microscopy■ **Glutaraldehyde 25 % solution in water**

for electron microscopy, standard grade

(Glutaric dialdehyde)

 $C_5H_8O_2$ ♦ M_r 100.13 ♦ CAS [111-30-8]

DANGER

H302-H314-H331-H334-H335-H400 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³

for glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.3720 – 1.3735

Purification index (A235/A280, max. 5.0

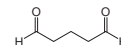
1 % in water)

Cat.No.	Size	EUR
23115.01	250 ml	25,00
23115.03	2,5 L	105,00

■ **Glutaraldehyde 25 % solution in water**

for electron microscopy, high purity

(Glutaric dialdehyde)

 $C_5H_8O_2$ ♦ M_r 100.13

DANGER

H302-H314-H331-H334-H335-H400 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³

for glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.3712 – 1.3728

Purification index (A235/A280, max. 0.5

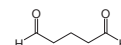
1 % in water)

Cat.No.	Size	EUR
23114.01	25 ml	21,00
23114.02	10 x 5 ml	99,00

■ **Glutaraldehyde 50 % solution in water**

for electron microscopy

(Glutaric dialdehyde)

 $C_5H_8O_2$ ♦ M_r 100.13

DANGER

H301-H314-H331-H334-H335-H400 ♦ MAK/TRK 0.1 ml/m³, 0.42 mg/m³

for glutaraldehyde ♦ GGVSE/ADR 8 II UN2922 ♦ IATA 8 II UN2922 ♦ WGK 3 ♦ HS 29121900

Storage temperature +2 °C to +8 °C

In vials; filled under argon.

Refractive index (20 °C) 1.410 – 1.421

Cat.No.	Size	EUR
23116.01	25 ml	39,00
23116.02	10 x 5 ml	110,00

Products for Molecular Biology:
see special chapter at p. 289

Osmium tetroxide for electron microscopy

(Osmium (VIII) oxide; Osmic acid)
OsO₄ ♦ M_r 254.2 ♦ CAS [20816-12-0]



DANGER
H300-H310-H314-H330 ♦ MAK/TRK 0.0002 ml/m³,
0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ GGVSE/
ADR 6.1 I UN2471 ♦ IATA 6.1 I UN2471 ♦ EINECS 244-058-7 ♦ WGK 3 ♦
HS 28259085

Assay min. 99.9 %

Cat.No.	Size	EUR
31251.01	100 mg	53,00
31251.03	1 g	125,00

Osmium tetroxide 4 % solution for electron microscopy

(Osmic acid; Osmium (VIII) oxide)
OsO₄ ♦ M_r 254.2



DANGER
H302-H312-H315-H318-H332-H335 ♦ MAK/TRK 0.0002
ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ WGK 3 ♦
HS 28259085

40 mg/ml in water

Cat.No.	Size	EUR
31253.01	2 ml	32,00
31253.02	10 x 2 ml	225,00
31253.03	10 ml	120,00
31253.04	5 x 10 ml	475,00

Paraformaldehyde pure

(Polyoxymethylene)
(CH₂O)_n ♦ M_r (30.0)_n ♦ CAS [30525-89-4]



WARNING
H228-H302-H315-H317-H319-H332-H335-H351 ♦
GGVSE/ADR 4.1 III UN2213 ♦ IATA 4.1 III UN2213

♦ WGK 2L ♦ HS 29126000

Assay (titr.) min. 95.0 %

Cat.No.	Size	EUR
31628.01	100 g	13,00
31628.02	500 g	28,00

Fixation in Light Microscopy

Acetic acid 100 % analytical grade

C₂H₄O₂ ♦ M_r 60.05 ♦ CAS [64-19-7]



DANGER
H226-H314 ♦ GGVSE/ADR 8 II UN2789 ♦ IATA 8 II UN2789
♦ EINECS 200-580-7 ♦ WGK 1 L ♦ HS 29152100

Assay (GC) min. 99.8 %
Density (20 °C) 1.05

Cat.No.	Size	EUR
45633.01	1 L	19,00
45633.02	2,5 L	40,00

Aceton research grade

C₃H₆O ♦ M_r 58.08 ♦ CAS [67-64-1]



DANGER
H225-H319-H336 ♦ EG-Index 606-001-00-8 ♦ GGVSE/
ADR 3 II UN1090 ♦ IATA 3 II UN1090 ♦ EINECS 200-662-2 ♦
WGK 1 L ♦ HS 29141100

Assay (GC) min. 99.5 %
Density (20 °C) 0.790 - 0.792
Water max. 0.2 %
Heavy metals max. 2 ppm

Cat.No.	Size	EUR
45632.01	1 L	16,00
45632.02	2,5 L	29,00

Ethanol undenatured absolute analytical grade

C₂H₆O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER
H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
♦ WGK 1L ♦ HS 22071000

Assay (GC) min. 99.7 %
Water (KF) max. 0.2 %

Cat.No.	Size	EUR
11093.01	250 ml	20,00
11093.02	1 L	61,00
11093.03	2,5 L	135,00

Methanol analytical grade

CH₃O ♦ M_r 32.04 ♦ CAS [67-56-1]



DANGER
H225-H301-H311-H331-H370 ♦ EG-
Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦
IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Assay (GC) min. 99.8 %
Density (20 °C) 0.7915
Water max. 1000 ppm
Acidity max. 10 ppm
Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

Paraformaldehyde pure

(Polyoxymethylene)
(CH₂O)_n ♦ M_r (30.0)_n ♦ CAS [30525-89-4]



WARNING
H228-H302-H315-H317-H319-H332-H335-H351 ♦
GGVSE/ADR 4.1 III UN2213 ♦ IATA 4.1 III UN2213

♦ WGK 2L ♦ HS 29126000

Assay (titr.) min. 95.0 %

Cat.No.	Size	EUR
31628.01	100 g	13,00
31628.02	500 g	28,00

5-Sulfosalicylic acid analytical grade

(2-Hydroxy-5-sulfobenzoic acid)
C₇H₆O₆S-2H₂O ♦ M_r 254.23 ♦ CAS [5965-83-3]

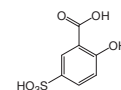


DANGER
H302-H314 ♦ GGVSE/ADR 8 III UN2585
♦ IATA 8 III UN2585 ♦ EINECS 202-555-6 ♦ WGK 2 ♦

HS 29182900

Assay min. 99.0 %

Cat.No.	Size	EUR
35706.01	100 g	28,00



Trichloroacetic acid analytical grade

C₂HCl₃O₂ ♦ M_r 163.4 ♦ CAS [76-03-9]



DANGER
H314-H410 ♦ EG-Index 607-004-00-7
♦ GGVSE/ADR 8 II UN1839 ♦ IATA 8 II UN1839 ♦
EINECS 200-927-2 ♦ WGK 2L ♦ HS 29154000

Assay (titr.) min. 99.0 %

Cat.No.	Size	EUR
36910.01	100 g	15,00
36910.03	500 g	38,00



Trichloroacetic acid, 20 % solution



DANGER
H314-H335-H336-H412 ♦ GGVSE/ADR 8 III UN2564 ♦
IATA 8 III UN2564 ♦ WGK 2S ♦ HS 38220000

Aqueous solution. TCA (cat. no. 36910): 200 g/L

Cat.No.	Size	EUR
36913.01	500 ml	30,00
36913.02	1 L	45,00

Dehydration

Many embedding media used are not water soluble. This requires dehydration of the specimen. Dehydration is performed by stepwise increasing the concentration of a suitable organic solvent.

■ Aceton research grade

C_3H_6O ♦ M_r 58.08 ♦ CAS [67-64-1]



DANGER
H225-H319-H336 ♦ EG-Index 606-001-00-8 ♦ GGVSE/
ADR 3 II UN1090 ♦ IATA 3 II UN1090 ♦ EINECS 200-662-2 ♦

WGK 1 L ♦ HS 29141100

Assay (GC) min. 99.5 %
Density (20 °C) 0.790 - 0.792
Water max. 0.2 %
Heavy metals max. 2 ppm

Cat.No.	Size	EUR
45632.01	1 L	16,00
45632.02	2,5 L	29,00

■ Ethanol denaturated 96 %

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER
H225 ♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦
EINECS 200-578-6 ♦ WGK 2 L ♦ HS 22072000

Assay (GC) min. 96.0 %
Methyl ethyl ketone 1 %
Aldehyde max. 30 ppm
Acidity max. 10 ppm
Methanol max. 1000 ppm
Residue on evaporation max. 25 ppm

Cat.No.	Size	EUR
11096.01	2,5 L	19,50
11096.02	5 L	32,50

■ Ethanol undenaturated 96 % analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER
H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ GGVSE/ADR 3 II UN1170
♦ IATA 3 II UN1170 ♦ EINECS 200-578-6 ♦ WGK 1 ♦ HS 22071000

Assay (GC) 94.0 - 96.0 %
Water (KF) 4.0 - 6.0 %

Cat.No.	Size	EUR
11094.01	1 L	61,00
11094.02	2,5 L	135,00

■ Ethanol undenaturated absolute analytical grade

C_2H_6O ♦ M_r 46.07 ♦ CAS [64-17-5]



DANGER
H225 ♦ MAK/TRK 500 ml/m³, 960 mg/m³ ♦ EG-Index 603-002-00-5
♦ GGVSE/ADR 3 II UN1170 ♦ IATA 3 II UN1170 ♦ EINECS 200-578-6
♦ WGK 1 L ♦ HS 22071000

Assay (GC) min. 99.7 %
Water (KF) max. 0.2 %

Cat.No.	Size	EUR
11093.01	250 ml	20,00
11093.02	1 L	61,00
11093.03	2,5 L	135,00

■ Methanol analytical grade

CH_3O ♦ M_r 32.04 ♦ CAS [67-56-1]



DANGER
H225-H301-H311-H370 ♦ EG-
Index 603-001-00-X ♦ GGVSE/ADR 3 II UN1230 ♦
IATA 3 II UN1230 ♦ EINECS 200-659-6 ♦ WGK 1 L ♦ HS 29051100

Assay (GC) min. 99.8 %
Density (20 °C) 0.7915
Water max. 1000 ppm
Acidity max. 10 ppm
Residue on evaporation max. 10 ppm

Cat.No.	Size	EUR
45631.01	1 L	18,00
45631.02	2,5 L	30,50

■ Propylene oxide research grade

(1,2-Epoxypropane)

C_3H_6O ♦ M_r 58.08 ♦ CAS [75-56-9]



DANGER
H224-H302-H312-H315-H319-H332-H335-H
340-H350 ♦ Muta. 1B, Carc. 1B ♦ MAK/TRK 6
mg/m³, 2.5 ml/m³ ♦ EG-Index 603-055-00-4 ♦ GGVSE/ADR 3 I UN1280 ♦
IATA 3 I UN1280 ♦ EINECS 200-879-2 ♦ WGK 3L ♦ HS 29102000

Purity (GC) min. 99.9 %

Cat.No.	Size	EUR
33715.03	500 ml	21,00



Buffers

■ Buffer substance Dulbecco's

(PBS)

HS 38220000

Phosphate buffered saline, **without** calcium and magnesium; **without** phenol red; powder.

References:

1. Dulbecco, R. & Vogt, M. (1954) J. Exp. Med. **99**, 17-82
2. Hanks, J.H. & Wallace, R.E. (1949) Proc. Soc. Exp. Biol. Med. **71**, 196-200

Cat.No.	Size	EUR
47302.02	10 L	14,00
47302.03	50 L	42,00

■ Cacodylic acid-Na-salt-3H₂O research grade

(Sodium cacodylate)

$C_2H_4AsO_2 \cdot Na \cdot 3H_2O$ ♦ M_r 214.0 ♦ CAS [6131-99-3]



DANGER
H301-H331-H400-H410 ♦ EG-Index 033-002-00-5
♦ GGVSE/ADR 6.1 II UN1688 ♦ IATA 6.1 II UN1688 ♦
EINECS 204-708-2 ♦ WGK 3 ♦ HS 29319090

For buffers, especially for bactericidal buffers used in electron microscopy.

Assay (titr.) min. 98.0 %

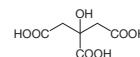
Cat.No.	Size	EUR
15540.01	25 g	26,00
15540.02	100 g	64,00
15540.03	500 g	280,00

■ Citric acid-H₂O analytical grade

$C_6H_8O_7 \cdot H_2O$ ♦ M_r 210.1 ♦ CAS [5949-29-1]



WARNING
H319 ♦ EINECS 201-069-1 ♦ WGK 1 ♦
HS 29181400



For buffers.

Assay (hydrate) 99.5 - 101.0 %

Cat.No.	Size	EUR
38640.01	500 g	14,00
38640.02	1 kg	19,00
38640.03	5 kg	65,00

■ Citric acid- Na_3 -salt- $2\text{H}_2\text{O}$ analytical grade

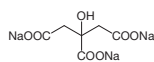
(tri-Sodium citrate)

 $\text{C}_6\text{H}_5\text{O}_7\cdot\text{Na}_3\cdot 2\text{H}_2\text{O}$ ♦ M_r 294.1 ♦ CAS [6132-04-3]

EINECS 200-675-3 ♦ WGK 1L ♦ HS 29181500

Ph.Eur.

Assay (titr.) 99.0 - 101.0 %



Cat.No.	Size	EUR
38642.02	1 kg	28,00
38642.03	5 kg	110,00

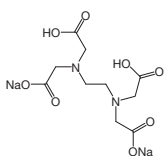
■ Ethylenediamine tetraacetic acid- Na_2 -salt analytical grade

(Versene disodium; EDTA-disodium)

 $\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8\cdot\text{Na}_2\cdot 2\text{H}_2\text{O}$ ♦ M_r 372.3 ♦ CAS [6381-92-6]

EINECS 205-358-3 ♦ WGK 2L ♦ HS 29212900

Assay (titr.) min. 99.0 %



Cat.No.	Size	EUR
11280.01	100 g	12,50
11280.02	1 kg	42,00
11280.03	5 kg	165,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid analytical grade

(HEPES)

 $\text{C}_8\text{H}_{18}\text{N}_2\text{O}_4\text{S}$ ♦ M_r 238.3 ♦ CAS [7365-45-9]

EINECS 230-907-9 ♦ WGK 1L ♦ HS 29335995

pKa 20 = 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

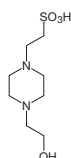
A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.08

Heavy metals (Pb) max. 10 ppm

pH 10 % in water 5.0 - 6.5

**References:**

- Good, N.E. et al. (1966) Biochemistry **5**, 467-77
- Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
- Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

■ N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid- Na -salt research grade

(HEPES- Na -salt) $\text{C}_8\text{H}_{17}\text{N}_2\text{O}_4\text{S}\cdot\text{Na}$ ♦ M_r 260.3 ♦ CAS [75277-39-3]

EINECS 278-169-7 ♦ WGK 1 ♦ HS 29335995

pKa 20 = 7.55

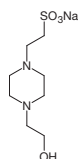
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.15

280 nm max. 0.1

pH 10 % in water 9.5 - 11.5



Cat.No.	Size	EUR
25249.03	100 g	50,00
25249.05	250 g	120,00
25249.04	1 kg	380,00

■ Morpholinoethane sulfonic acid analytical grade

(MES)

 $\text{C}_6\text{H}_{13}\text{NO}_3\text{S}$ ♦ M_r 195.24 ♦ CAS [4432-31-9]

EINECS 224-632-3 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

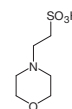
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.1

pH 10 % in water 2.5 - 4.0

**References:**

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29834.02	100 g	42,00
29834.04	500 g	165,00
29834.03	1 kg	305,00

■ Morpholinoethane sulfonic acid, monohydrate analytical grade

(MES)

 $\text{C}_6\text{H}_{13}\text{NO}_3\text{S}\cdot\text{H}_2\text{O}$ ♦ M_r 213.25 ♦ CAS [145224-94-8]

EINECS 224-632-3 ♦ HS 29349990

pKa 20 = 6.15. Buffering substance (1). Physical constants (2).

Assay (titr.) min. 99.0 %

A 1 cm/0.1 M in water

260 nm max. 0.05

280 nm max. 0.02

pH 1 % in water 2.5 - 4.0

References:

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68
- Sankar, M. & Bates, R.G. (1978) Anal. Chem. **50**, 1922-4

Cat.No.	Size	EUR
29830.01	100 g	39,00
29830.02	250 g	72,00
29830.03	1 kg	195,00
29830.06	500 g	110,00

■ Morpholinopropane sulfonic acid analytical grade

(MOPS)

 $\text{C}_7\text{H}_{15}\text{NO}_3\text{S}$ ♦ M_r 209.27 ♦ CAS [1132-61-2]

EINECS 214-478-5 ♦ WGK 1L ♦ HS 29349990

pKa 20 = 7.2. Buffering substance.

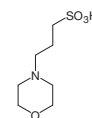
Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm max. 0.1

280 nm max. 0.08

pH 10 % in water 3.0 - 5.0

**References:**

- Good, N.E. & Izawa, S. (1972) Methods Enzymol. **24**, 53-68

Cat.No.	Size	EUR
29836.02	100 g	35,00
29836.03	500 g	110,00
29836.04	1 kg	195,00

■ Piperazine-N,N'-bis(2-ethane sulfonic acid) analytical grade

(PIPES; 1,4-Piperazinediethane sulfonic acid)

 $\text{C}_8\text{H}_{18}\text{N}_2\text{O}_6\text{S}_2$ ♦ M_r 302.4 ♦ CAS [5625-37-6]

HS 29335995

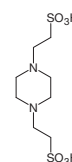
Buffering substance pKa 20 = 6.8.

Assay (titr.) min. 99 %

A 1 cm/2 % in NaOH

250 nm max. 0.2

Heavy metals (Pb) max. 0.0005 %

**References:**

- Good, N.E. et al. (1966) Biochemistry **5**, 467-77

Cat.No.	Size	EUR
32981.01	50 g	31,00
32981.02	250 g	93,00

■ **Potassium chloride** research grade

KCl ♦ M_r 74.55 ♦ CAS [7447-40-7]

EINECS 231-211-8 ♦ WGK 1L ♦ HS 28273985

Ph. Eur.

Assay (titr.) 99.0 - 100.5 %
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26868.02	1 kg	24,00

■ **Potassium dihydrogen phosphate anhydrous**

analytical grade

(Potassium phosphate dibasic (sec. potassium phosphate); Potassium phosphate monobasic (prim. potassium phosphate))

KH₂PO₄ ♦ M_r 136.1 ♦ CAS [7778-77-0]

EINECS 231-913-4 ♦ WGK 1 ♦ HS 28352400

Biochemical and enzyme standard. Buffering substance according to Sørensen. 9.072 g in 1 liter water = 1/15 M. Tested for use in tissue culture.

Assay (titr.) min. 99.0 %
pH 5 % in water 4.1 - 4.5
Heavy metals (Pb) max. 10 ppm
Nitrogen (N) max. 10 ppm

Cat.No.	Size	EUR
26870.01	500 g	27,00

■ **di-Potassium hydrogen phosphate anhydrous**

analytical grade

(sec. Potassium phosphate; Potassium phosphate dibasic (sec. potassium phosphate))

K₂HPO₄ ♦ M_r 174.18 ♦ CAS [7758-11-4]

EINECS 231-834-5 ♦ WGK 1 ♦ HS 28352400

Assay min. 99.0 %
pH 5 % in water 8.7 - 9.3
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
26887.01	500 g	35,00

■ **Sodium dihydrogen phosphate-2H₂O** research grade

(Sodium phosphate monobasic (prim. sodium phosphate))

NaH₂PO₄·2H₂O ♦ M_r 156.01 ♦ CAS [13472-35-0]

EINECS 231-449-2 ♦ WGK 1L ♦ HS 28352200

USP, Ph.Eur.

Assay (titr.) 98.0 - 100.5 %

Cat.No.	Size	EUR
30186.02	1 kg	32,00

■ **di-Sodium hydrogen phosphate-2H₂O** analytical grade

(Sodium phosphate dibasic (sec. sodium phosphate))

Na₂HPO₄·2H₂O ♦ M_r 177.99 ♦ CAS [10028-24-7]

EINECS 231-448-7 ♦ WGK 1L ♦ HS 28352200

Buffering substance according to Sørensen. Biochemical and enzymatic standard, tested for use in tissue culture.

Assay (titr.) 98.0 - 100.5 %
pH 5 % solution 9.0 - 9.2
Heavy metals (Pb) max. 10 ppm

Cat.No.	Size	EUR
30200.01	500 g	24,00

■ **Tris(hydroxymethyl)aminomethane** analytical grade

(TRIS; THAM; Trometamol; Tromethamine; 2-Amino-2-(hydroxymethyl)-1,3-propanediol)

C₄H₁₁NO₃ ♦ M_r 121.1 ♦ CAS [77-86-1]



WARNING

H315-H319 ♦ EINECS 201-064-4 ♦ WGK 2L ♦ HS 29221985

USP. Buffer quality for biological and enzymatic research.

Assay (titr.) min. 99.9 %
A 1 cm/10 % in water
235 nm max. 0.60
260 nm max. 0.15
280 nm max. 0.15
430 nm max. 0.07
Heavy metals (Pb) max. 1 ppm
pH (5 % in water) 10.0 - 11.5

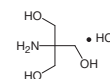
Cat.No.	Size	EUR
37180.02	100 g	15,00
37180.03	500 g	35,00
37180.05	1 kg	59,00
37180.04	2,5 kg	135,00

■ **Tris(hydroxymethyl)aminomethane-hydrochloride**

research grade

(Tris-hydrochloride)

C₄H₁₁NO₃·HCl ♦ M_r 157.6 ♦ CAS [1185-53-1]



WARNING

H315-H319-H335 ♦ EINECS 214-684-5 ♦ WGK 1 ♦ HS 29221985

For enzymology

Assay (titr.) min. 99.0 %
A 1 cm/10 % in water
230 nm max. 0.1
260 nm max. 0.05
280 nm max. 0.03
Heavy metals (Pb) max. 10 ppm
pH (10 % in water) 3.5 - 5.0

Cat.No.	Size	EUR
37192.01	100 g	21,00
37192.02	500 g	77,00
37192.03	2,5 kg	310,00

Products for Cell Culture:
see Special Chapter at p. 310

Stains

SERVA offers high quality dyes and staining kits for applications in botany, bacteriology, histology and cell culture.

Biological material is mainly composed of molecules containing atoms like carbon, hydrogen, oxygen, nitrogen, phosphor etc., which all have a low atomic weight and are therefore electron-transparent. In the electron microscope such untreated samples would yield a blurred image with low contrast. To increase contrast, samples have to be treated with salts of heavy metals which are able to scatter electrons.

See section *Stains in Electron Microscopy* for the most common contrasting reagents.

Stains in Electron Microscopy

■ Alcian Blue 8 GS

(Alcian Blue 8GX)

C.I.74240 ♦ CAS [75881-23-1]

EINECS 278-333-8 ♦ WGK 2L ♦ HS 32041900

Copper phthalocyanine dye. Stain for glycoproteins in electron microscopy (1). In electrophoresis (2, 3). For determination of glycosaminoglycans (4, 5).

$\lambda_{\max}$ 610 - 625 nm
A 1 cm/0.001 % in water/ $\lambda_{\max}$ min. 0.18

References:

- Mowry, R.W. (1956) J. Histochem. Cytochem. **4**, 407
- Ward, A.H. & Allen, W.S. (1972) Anal. Biochem. **48**, 621-3
- Ward, A.H. & Michos, G.A. (1972) Anal. Biochem. **49**, 607-9
- O'Brien, J.F. & Emmerling, M.E. (1978) Anal. Biochem. **85**, 377-86
- Kanwar, Y.S. & Farquhar, M.G. (1979) Proc. Natl. Acad. Sci. USA **76**, 4493-7

Cat.No.	Size	EUR
12021.01	10 g	57,00
12021.02	50 g	205,00

■ Ammonium molybdate analytical grade

(NH₄)₆Mo₇O₂₄·4H₂O ♦ M_r 1235.9 ♦ CAS [12054-85-2]



WARNING

H302 ♦ EINECS 234-722-4 ♦ WGK 1L ♦ HS 28417000

Suitable for the determination of phosphate and arsenate.

Assay (titr.) 81.0 - 83.0 % as MoO₃
xxx min. 99.0 % as (NH₄)₆Mo₇O₂₄·4H₂O
Phosphate max. 0.0005 %

Cat.No.	Size	EUR
13370.01	100 g	52,00

■ 3,3'-Diaminobenzidine·4HCl·xH₂O research grade

(DAB)

C₁₂H₁₄N₄·4HCl·xH₂O ♦ M_r 360.1 (anhydr.) ♦

CAS [868272-85-9]



WARNING

H302-H332-H351 ♦ Carc. 2 ♦

EINECS 231-018-9 ♦ WGK 3 ♦ HS 29215990

Storage temperature +2 °C to +8 °C

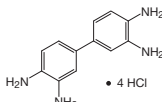
Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (titr.) min. 96.0 %

References:

- Hanker, J.S. et al. (1972) Histochemistry **30**, 201-14
- Graham, R.C. & Karnovsky, M.J. (1966) J. Histochem. Cytochem. **14**, 291-302

Cat.No.	Size	EUR
18865.01	100 mg	12,00
18865.02	1 g	22,00



■ Osmium tetroxide for electron microscopy

(Osmium (VIII) oxide; Osmic acid)

OsO₄ ♦ M_r 254.2 ♦ CAS [20816-12-0]



DANGER

H300-H310-H314-H330 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ GGVSSE/

ADR 6.1 I UN2471 ♦ IATA 6.1 I UN2471 ♦ EINECS 244-058-7 ♦ WGK 3 ♦ HS 28259085

Assay min. 99.9 %

Cat.No.	Size	EUR
31251.01	100 mg	53,00
31251.03	1 g	125,00

■ Osmium tetroxide 4 % solution for electron microscopy

(Osmic acid; Osmium (VIII) oxide)

OsO₄ ♦ M_r 254.2



DANGER

H302-H312-H315-H318-H332-H335 ♦ MAK/TRK 0.0002 ml/m³, 0.0021 mg/m³ ♦ EG-Index 076-001-00-5 ♦ WGK 3 ♦

HS 28259085

40 mg/ml in water

Cat.No.	Size	EUR
31253.01	2 ml	32,00
31253.02	10 x 2 ml	225,00
31253.03	10 ml	120,00
31253.04	5 x 10 ml	475,00

■ Phosphotungstic acid hydrate analytical grade

H₃[P(W₃O₁₀)₄]₄·xH₂O ♦ M_r 2880.2 (anhydrous) ♦ CAS [12501-23-4]



DANGER

H314 ♦ GGVSSE/ADR 8 III UN3260 ♦ IATA 8 III UN3260 ♦

EINECS 215-682-7 ♦ WGK 2L ♦ HS 28429080

Used for staining of cell specimens and negative staining in electron microscopy.

Chloride max. 0.005 %
Sulfate max. 0.01 %
Lead max. 0.002 %

Cat.No.	Size	EUR
32757.01	25 g	32,00
32757.02	100 g	89,00

■ Uranyl acetate·2H₂O research grade

(CH₃COO)₂UO₂·2H₂O ♦ M_r 424.2 ♦ CAS [6159-44-0]



DANGER

H300-H330-H373-H411 ♦ MAK/TRK 0,25 mg/m³ calculated as uran ♦ EG-Index 092-002-00-3 ♦

GGVSSE/ADR 7 UN2910 ♦ IATA 7 UN2910 ♦ EINECS 629-550-5 ♦ WGK 3L ♦ HS 28443019

For determination of unbound radioactive iodine in radiolabelled glycoproteins. For positive staining in electron microscopy.

Assay (titr.) min. 98.0 %
Chloride (Cl) max. 0.003 %
Lead (Pb) max 0.002 %

Export restricted. Please ask for details.

References:

- Boratynski, J. (1987) Anal. Biochem. **160**, 35-8

Cat.No.	Size	EUR
77870.02	5 g	120,00
77870.01	25 g	525,00

Stains in Light Microscopy

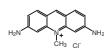
■ **Acriflavine-HCl** research grade

(Trypaflavine HCl)
CAS [8063-24-9]



DANGER

H302-H318-H411 ♦ GGVSE/ADR 9 III UN3077 ♦
IATA 9 III UN3077 ♦ WGK 2L ♦ HS 32041300



A mixture of the hydrochlorides of 3,6-diamino-10- methylacridinium chloride and 3,6-diaminoacridine.

Cat.No.	Size	EUR
10671.01	25 g	40,00
10671.02	100 g	115,00

■ **Alcian Blue 8 GS**

(Alcian Blue 8GX)

C.I.74240 ♦ CAS [75881-23-1]

EINECS 278-333-8 ♦ WGK 2L ♦ HS 32041900

Copper phthalocyanine dye. Stain for glycoproteins in electron microscopy (1). In electrophoresis (2, 3). For determination of glycosaminoglycans (4, 5).

λ max. 610 - 625 nm
A 1 cm/0.001 % in water/ λ max min. 0.18

References:

1. Mowry, R.W. (1956) J. Histochem. Cytochem. **4**, 407
2. Wardi, A.H. & Allen, W.S. (1972) Anal. Biochem. **48**, 621-3
3. Wardi, A.H. & Michos, G.A. (1972) Anal. Biochem. **49**, 607-9
4. O'Brien, J.F. & Emmerling, M.E. (1978) Anal. Biochem. **85**, 377-86
5. Kanwar, Y.S. & Farquhar, M.G. (1979) Proc. Natl. Acad. Sci. USA **76**, 4493-7

Cat.No.	Size	EUR
12021.01	10 g	57,00
12021.02	50 g	205,00

■ **Aniline Blue** pract.

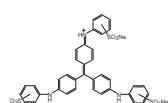
(Acid Blue 93; China Blue)

C.I. 42780 ♦ CAS [28983-56-4]

EINECS 249-352-9 ♦ WGK 2L ♦ HS 32041200

Soluble in water.

λ max. ca. 590 nm
A 1 cm /0.001 % in water/ λ max 0.3 ± 0.1
Water (KF) max. 10.0 %



Cat.No.	Size	EUR
13645.01	25 g	35,00

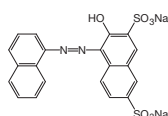
■ **Azorubin** pure

(Acid Red 14; Chromotrope FB)

C.I.14720 ♦ $C_{20}H_{12}N_2O_7S_2 \cdot Na_2$ ♦ M_r 502.4 ♦
CAS [3567-69-9]

EINECS 222-657-4 ♦ WGK 2L ♦ HS 29270000

λ max. (0.001 % in water) 514 - 522
A 1 cm/ λ max (0.001 % in water) min. 0.4



Cat.No.	Size	EUR
14410.01	25 g	43,50

■ **BCIP/NBT ready-to-use substrate**
for immunohistochemistry and blotting

HS 38220000

Storage temperature +2 °C to +8 °C

Single component substrate solution for detection of alkaline phosphatase in immunohistochemical, in situ hybridization and blotting procedures. A very fine blue-purple precipitate will be localized at sites of AP activity on tissue sections. Purple bands or dots will be visible at the sites of AP activity on membranes.

Contains a proprietary enhancer and a non-toxic stabilizer, which guarantee a highly sensitive and consistent performance of the substrate.

Cat.No.	Size	EUR
15246.01	100 ml	57,00

■ **Bisbenzimidide H 33258** research grade

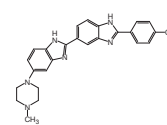
(Hoechst 33258; 2-[2-(4-Hydroxyphenyl)-6-benzimidazolyl]-6-(1-methyl-4-piperazyl)-benzimidazole trihydrochloride)

$C_{25}H_{24}N_6O \cdot 3HCl$ ♦ M_r 533.88 ♦
CAS [23491-45-4]



WARNING

H315-H319 ♦ EINECS 245-690-6 ♦ WGK 1 ♦ HS 29335995
Storage temperature +2 °C to +8 °C



For DNA fluorescence labeling of vital and fixed nuclei (1, 2). Specific chromosome banding patterns (3, 4, 5).

Assay (HPLC) min. 98.0 %
Water max. 20.0 %

References:

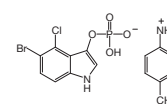
1. Lämmler, G. & Schütze, H.R. (1969) Naturwissenschaften **58**, 286-99
2. Hilwig, J. (1969) Z. Zellforsch. **104**, 127-37
3. Hilwig, J. & Gropp, A. (1972) Exp. Cell Res. **75**, 122-6
4. Binder, M. & Kim, M.A. (1975) Exp. Path. **10**, 220-4
5. Stokke, T. & Steen, H.B. (1985) J. Histochem. Cytochem. **33**, 333-8

Cat.No.	Size	EUR
15090.01	100 mg	58,00

■ **5-Bromo-4-chloro-3-indolyl-phosphate-p-toluidine-salt**
research grade

(BCIP)

$C_8H_6NO_4BrCl \cdot C_7H_7N$ or $C_{15}H_{15}BrClN_2O_4P$ ♦ M_r 433.6
♦ CAS [6578-06-9]



EINECS 229-506-1 ♦ HS 29339980

Storage temperature -15 °C to -25 °C

Used in conjunction with NBT (cat. no. 30550) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 100 % DMF. Store at 4 °C or -20 °C.

Staining solution for western blots: 66 μ l NBT stock solution and 33 μ l BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM $MgCl_2$, 100 mM Tris; pH 9.5)

Assay (HPLC) min. 99.0 %

References:

1. Wolf, P.L. et al. (1973) Clin. Chem. **19**, 1248-9

Cat.No.	Size	EUR
15247.02	100 mg	25,00
15247.03	500 mg	85,00

■ **Bromophenol Blue-Na-salt**

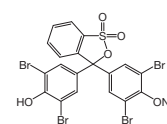
(3'-3''-5'-5''-Tetrabromophenol sulfonphthalein)

$C_{19}H_9Br_4O_5S \cdot Na$ ♦ M_r 692.0 ♦ CAS [34725-61-6]

EINECS 252-170-2 ♦ WGK 2L ♦ HS 32049000

Tracking dye for electrophoresis; indicator ph 3.4 (yellow) - 4.6 (purple).

λ max (0.001 % in water) 594 ± 4 nm



Cat.No.	Size	EUR
15375.01	5 g	16,50
15375.02	25 g	41,00

■ **Carmine** research grade

(Natural Red 4; Aluminum calcium lake of the cochineal dye)

C.I.75470 ♦ CAS [1390-65-4]

EINECS 215-724-4 ♦ WGK 1L ♦ HS 32030010

For application in Orth's lithium carmine staining and Schneider's acetocarmine staining.

Cat.No.	Size	EUR
16180.01	5 g	20,00
16180.02	25 g	69,00

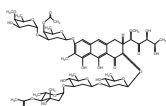
■ **Chromomycin A₃** research gradeC₅₇H₈₂O₂₆ ♦ M_r 1183.3 ♦ CAS [7059-24-7]DANGER
H300-H310-H330-H360D ♦
GGVSE/ADR 6.1 I UN2811 ♦IATA 6.1 I UN2811 ♦ EINECS 230-348-0 ♦ WGK 3L ♦
HS 29419000

Storage temperature +2 °C to +8 °C

Inhibitor of DNA-dependent RNA-synthesis (1). For fluorescent chromosome banding (2).

References:

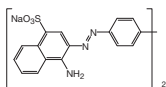
1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Schweizer, D. (1976) Chromosoma (Berl.) **58**, 307-24



Cat.No.	Size	EUR
17148.01	10 mg	150,00

■ **Congo Red** research grade

(Direct Red 28)

C.I.22120 ♦ C₃₂H₂₂N₆O₅S₂·Na₂ ♦ M_r 696.7 ♦
CAS [573-58-0]DANGER
H350-H361d ♦ Carc. 1B, Repr. 2 ♦ EG-Index 611-027-00-8 ♦
EINECS 209-358-4 ♦ WGK 2L ♦ HS 32049000Tested for use in histology. Indicator pH 3.0 - 5.2 blue-reddish orange.
λ_{max} 496 nm.

Cat.No.	Size	EUR
27215.01	25 g	28,00

■ **Crystal Violet** research grade

(Basic Violet 3; Hexamethylpararosaniline-HCl; Gentian Violet 10B; Methyl Violet 10B)

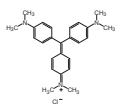
C.I.42555 ♦ C₂₅H₃₀ClN₃ ♦ M_r 408.0 ♦ CAS [548-62-9]

DANGER

H302-H318-H351-H410 ♦ Carc. 2 ♦

EG-Index 612-204-00-2 ♦ GGVSE/ADR 9 III UN3077 ♦ IATA 9 III UN3077 ♦
EINECS 208-953-6 ♦ WGK 3 ♦ HS 32049000

This dye is chemically homogeneous and well-defined, particularly recommended for Flemming and Gram-staining because of reproducible results. Commercial preparations usually contain components of reddish tinge like methyl violet 2B. Indicator pH 0.0 - 1.8.

λ_{max} 580 - 600 nmA 1 cm/λ_{max} (0.0001 % in water) min. 0.17

Cat.No.	Size	EUR
27335.01	25 g	21,00
27335.02	100 g	51,00

■ **4',6-Diamidino-2-phenylindole-2HCl** analytical grade

(DAPI)

C₁₆H₁₅N₅·2HCl ♦ M_r 350.25 ♦ CAS [28718-90-3]

EINECS 249-186-7 ♦ WGK 1 ♦ HS 29339980

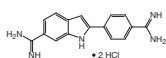
Storage temperature +2 °C to +8 °C

Fluorescent dye binding selectively to DNA. For demonstration of mycoplasmas and virus in cells (1). For fluorescent chromosome staining (2). Dye for brain stem (3).

Purity min. 98.0 %

References:

1. Russel, W.C. et al. (1975) Nature **253**, 461-2
2. Schweizer, D. (1976) Chromosoma (B.) **58**, 307-24
3. van der Kooy, D. & Kuypers, H.G.J.M. (1979) Science **204**, 873-5



Cat.No.	Size	EUR
18860.01	10 mg	42,00
18860.02	25 mg	81,00

■ **3,3'-Diaminobenzidine-4HCl·xH₂O** research grade

(DAB)

C₁₂H₁₄N₄·4HCl·xH₂O ♦ M_r 360.1 (anhydr.) ♦
CAS [868272-85-9]

WARNING

H302-H332-H351 ♦ Carc. 2 ♦

EINECS 231-018-9 ♦ WGK 3 ♦ HS 29215990

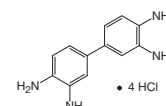
Storage temperature +2 °C to +8 °C

Vials under argon. For histology and ultrahistochemistry, yields osmiophilic oxidation products (1). Demonstration of ultrastructural peroxidase (2).

Assay (titr.) min. 96.0 %

References:

1. Hanker, J.S. et al. (1972) Histochemie **30**, 201-14
2. Graham, R.C. & Karnovsky, M.J. (1966) J. Histochem. Cytochem. **14**, 291- 302



Cat.No.	Size	EUR
18865.01	100 mg	12,00
18865.02	1 g	22,00

■ **3-(4,5-Dimethyl-2-thiazolyl)-2,5-diphenyl-2H-tetrazolium-bromide** research grade

(MTT; Thiazolyl blue)

C₁₈H₁₆BrN₅S ♦ M_r 414.33 ♦ CAS [298-93-1]

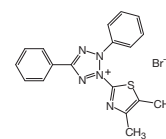
EINECS 206-069-5 ♦ WGK 2L ♦ HS 29341000

Detection of dehydrogenases in combination with phenazine methosulfate (1). Terminal electron acceptor in the cycling assay for pyridine nucleotides (2). For colorimetric assay to measure cell activation (3, 4).

Assay (titr.) min. 98.0 %

References:

1. Schauenstein, E. & Höfler-Bergthaler, E. (1972) Monatsh. Chem. **103**, 1271-5
2. Bernofsky, C. & Swan, M. (1973) Anal. Biochem. **53**, 542-8
3. Gerlier, D. & Thomasset, N. (1986) J. Immunol. Methods **94**, 57-64
4. Hansen, M.B. et al. (1989) J. Immunol. Methods **119**, 203-10



Cat.No.	Size	EUR
20395.01	250 mg	12,00
20395.02	1 g	25,00
20395.03	5 g	95,00
20395.04	25 g	390,00

■ **1,9-Dimethylmethyle blue-chloride** pure

([3,7-Bis(dimethylamino)-1,9-dimethyldiphenothiazin-5-ium chloride])

C₁₈H₂₂ClN₃S·0.5 ZnCl₂ ♦ M_r 416.05 ♦ CAS [931418-92-7]

WARNING

H319 ♦ WGK 2L ♦ HS 32041300

Histological stain with strong metachromic properties (1, 2).

Particularly suitable for the quantitation and discrimination of sulfated glycosaminoglycans (proteoglycans) (3, 4).

References:

1. Taylor, K.B. & Jefree, G.B. (1969) Histochem. J. **1**, 199-204
2. Toepfer, K. (1970) Histochemie **21**, 64-72
3. Farndale, R.W. et al. (1982) Connect. Tissue Res. **9**, 247-8
4. Klompmakers, A.A. & Hendriks, T. (1986) Anal. Biochem. **153**, 80-4

Cat.No.	Size	EUR
20335.01	1 g	120,00

■ **Eosin Y-Na-salt** research grade

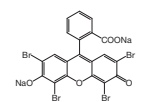
(Acid Red 87; Eosin Yellowish; Tetrabromo-fluorescein)

C₂₀H₆Br₄O₅·Na₂ ♦ M_r 691.9 ♦

CAS [17372-87-1]

HS 29329900

Tested for use as histological stain and as fluorescent indicator (Y = yellowish).

λ_{max} 0.001 % in water 516 ± 4 nm

Cat.No.	Size	EUR
21005.01	25 g	28,00

Ethidium bromide research grade

(1,7-Diamino-10-ethyl-9-phenylphenanthridinium bromide; 3,8-Diamino-5-ethyl-6-phenyl-phenanthridiniumbromide; Homidium bromide)

$C_{21}H_{20}N_3^+Br^-$ M_r 394.33 $\blacklozenge$
CAS [1239-45-8]



DANGER

H302-H330-H341 $\blacklozenge$ EG-Index 612-278-00-6 $\blacklozenge$ GGVSE/
ADR 6.1 I UN2811 $\blacklozenge$ IATA 6.1 I UN2811 $\blacklozenge$ EINECS 214-984-6 $\blacklozenge$ WGK 2 $\blacklozenge$
HS 29339980

Suitable for use in staining of DNA after electrophoresis. Also used as counterstain for cell nuclei in histological and cytological analysis.

Caution:

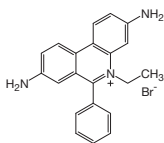
Ethidium bromide is a powerful mutagen and moderately toxic. Gloves should be worn when working with solutions that contain this dye. For decontamination of dilute ethidium bromide containing solutions follow the method from Lunn and Samsone (1). The adsorbent SERDOLIT™ PAD-I for this procedure is available under cat. no. 42442.

Assay (titr.) min. 98.0 %

References:

1. Lunn & Samsone (1987) Ethidium bromide: Destruction and decontamination of solutions. *Anal. Biochem.* **162**, 453

Cat.No.	Size	EUR
21238.01	1 g	18,00
21238.02	5 g	64,00



Ethidium bromide aqueous solution 1 % w/v



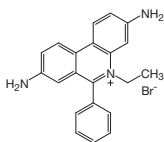
DANGER

H330-H341 $\blacklozenge$ GGVSE/
ADR 6.1 III UN2810 $\blacklozenge$

IATA 6.1 III UN2810 $\blacklozenge$ WGK 2 $\blacklozenge$ HS 38220000
Storage temperature +2 °C to +8 °C

Concentration: 10 mg/ml. Suitable for use in staining of DNA after electrophoresis or as counterstain of cell nuclei in histology and cytology.

Cat.No.	Size	EUR
21251.01	25 ml	29,00



Fast Green FCF

(Food Green 3)

C.I.42053 $\blacklozenge$ $C_{37}H_{34}N_2O_{10}S_3Na_2$ M_r 808.9 $\blacklozenge$
CAS [2353-45-9]



WARNING

H341 $\blacklozenge$ EINECS 219-091-5 $\blacklozenge$ WGK 2L $\blacklozenge$
HS 32041200

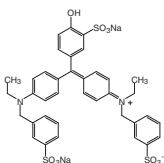
Similar to Lissamine Green SF (C.I.42095). Useful for quantitative evaluation of polyacrylamide gel electrophoretic separations (1, 2, 3).

λ_{max} . 0.0005 % in water 624 nm $\pm$ 3

References:

1. Gorovsky, M.A. et al. (1970) *Anal. Biochem.* **35**, 359-370
2. Bartolini, M.B. et al. (1976) *Anal. Biochem.* **71**, 6-13
3. Allen, R.E. et al. (1980) *Anal. Biochem.* **104**, 494-8

Cat.No.	Size	EUR
21295.01	5 g	22,00
21295.02	25 g	79,00



Fast Red TR-salt

(Azoic Diazo Component 11; Diazotized 2-amino-5-chlorotoluene-1,5-naphthalene disulfonate; Echtrotsalz TR)



C.I.37085 $\blacklozenge$ $C_7H_6ClN_2 \cdot C_{10}H_7O_6S_2$ M_r 440.9 $\blacklozenge$
CAS [51503-28-7]

DANGER

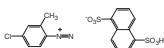
H302-H315-H319-H335-H350 $\blacklozenge$ EINECS 257-247-4 $\blacklozenge$ WGK 2L $\blacklozenge$
HS 32041600

Coupling with 1-naphthol.

References:

1. Gundlach, E. & Mühlhausen, B. (1980) *J. Clin. Chem. Clin. Biochem.* **18**, 603-10

Cat.No.	Size	EUR
21317.01	50 g	288,00



Fluorescein diacetate 5xcryst. research grade

(Diacetylfluorescein)

$C_{22}H_{18}O_5$ $\blacklozenge$ M_r 416.4 $\blacklozenge$ CAS [596-09-8]

EINECS 209-877-6 $\blacklozenge$ WGK 1 $\blacklozenge$ HS 29329900

Storage temperature +2 °C to +8 °C

Special quality for the study of cell membranes (1).

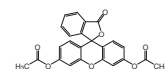
For histochemical esterase detection (2). Measurement of mitochondrial pH-gradients in isolated hepatocytes (3).
Use as fluorescent viability stain (4 - 6).

MP 200 - 205 °C

References:

1. Rotman, B. & Papermaster, B.W. (1963) *Proc. Natl. Acad. Sci. USA* **50**, 134-41
2. Guibault, G.G. & Kramer, D.N. (1964) *Anal. Chem.* **36**, 409-12
3. Thomas, P.J. et al. (1991) *Arch. Biochem. Biophys.* **288**, 250
4. Gray, D.W.R. & Morris, P.J. (1987) *Stain Technol.* **62**, 373
5. Jamagin, J.L. & Luchsinger, D.W. (1980) *Stain Technol.* **55**, 253
6. Ross, D.D. et al. (1989) *Cancer Res.* **49**, 3776

Cat.No.	Size	EUR
21575.02	5 g	59,00



Fuchsin acid pure

(Acid Violet 19; Rubin S; Fuchsin trisulfonate)

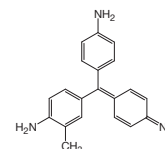
C.I. 42685 $\blacklozenge$ $C_{20}H_{17}N_3Na_2O_9S_3$ M_r 585.5 $\blacklozenge$
CAS [3244-88-0]

WGK 2L $\blacklozenge$ HS 32041200

Indicator pH 12-14.

λ_{max} . 0.001 % in H_2O 546 $\pm$ 4 nm

Cat.No.	Size	EUR
34597.01	25 g	38,00
34597.02	100 g	114,00



Fuchsin basic pure

(Basic Violet 14)

C.I.42510 $\blacklozenge$ CAS [632-99-5]



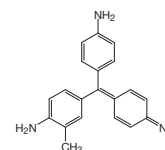
DANGER

H350 $\blacklozenge$ Carc. 1B $\blacklozenge$ EINECS 211-189-6 $\blacklozenge$
HS 32041300

Mixture of homologues of parafuchsin.

λ_{max} . 0.0001 % in 50 % ethanol 552 $\pm$ 4 nm

Cat.No.	Size	EUR
21916.02	25 g	22,00
21916.03	100 g	52,00



Hematoxylin pure

(Natural Black)

C.I.75290 $\blacklozenge$ $C_{16}H_{14}O_6$ M_r 302.29 $\blacklozenge$ CAS [517-28-2]



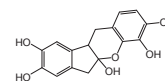
WARNING

H315-H319-H335 $\blacklozenge$ EINECS 208-237-3 $\blacklozenge$
WGK 2L $\blacklozenge$ HS 32030010

Tested for use in Delafield-Heidenhain staining. Light-sensitive.

λ_{max} . 0.004 % in acetonitrile 293 $\pm$ 3 nm
Indicator pH 5.0 - 6.0

Cat.No.	Size	EUR
24420.01	25 g	65,00
24420.02	100 g	218,00



Ion Exchange Media:

see special chapter at p. 375

Malachite green oxalate research grade

(Basic Green 4)

C.I.42000 ♦ $(C_{23}H_{29}N_2)_2 \cdot C_2O_4^{2-} \cdot 2C_2H_4O_4$ ♦ M_r 927 ♦
CAS [2437-29-8]



DANGER
H302-H318-

H361d-H400-H410 ♦ EG-Index 602-096-00-5 ♦
GGVSE/ADR 6.1 III UN2811 ♦ IATA 6.1 III UN2811 ♦
EINECS 219-441-7 ♦ WGK 3L ♦ HS 32041300

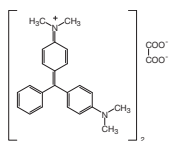
Suitable for bacteriology and histological staining. For fifty-fold amplification of the Lowry protein assay.

λ_{max}. 0.0001 % in H₂O 618 ± 2 nm

References:

1. Sargent, M.G. (1987) Anal. Biochem. **163**, 476-81

Cat.No.	Size	EUR
28335.03	25 g	16,00



Methylene Blue

(Basic Blue 9; Methylene blue chloride; Methylthionine chloride)



C.I.52015 ♦ $C_{16}H_{18}N_3S^+ \cdot Cl^-$ ♦ M_r 319.86 ♦
CAS [61-73-4]

WARNING

H302 ♦ EINECS 200-515-2 ♦ WGK 2L ♦ HS 32049000

Standardized according to DIN 58981. Methylene blue is very sensitive to oxidation and usually contains demethylated products, called Azure A, B and C and thionine. For staining and detecting RNA in PAGE (as 0.1 % solution in water). Water soluble nuclear staining dye, mostly used for staining of blood cells.

λ_{max}. (0.0001 % in water) 665 ± 2 nm

A 1 cm/λ_{max}./0.0001 % in water min. 0.17

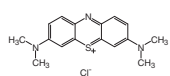
Water (KF) max. 15.0 %

Sulfated ash max. 1.0 %

References:

1. Herrini & Schmidt (1988) Rapid, reversible staining of Northern Blots prior to hybridization. BioTechniques **6**, 196

Cat.No.	Size	EUR
29198.01	25 g	25,00
29198.02	100 g	75,00



Mithramycin A pure

(Aureolic acid; Plicamycin)

$C_{52}H_{76}O_{24}$ ♦ M_r 1085.2 ♦ CAS [18378-89-7]



WARNING
H302-H332-H341 ♦ WGK 1 ♦
HS 29419000

Storage temperature +2 °C to +8 °C

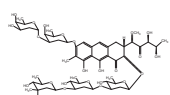
Similar to chromomycin A₃ in structure and mechanism of action, inhibits RNA synthesis. Forms complexes with DNA (1). Review on structure (2). Fluorescent antibioticum used for specific staining of DNA in flow cytometry and microscopy.

Assay (HPLC, TLC) min. 95.0 %

References:

1. Goldberg, I.H. & Friedman, P.A. (1971) Annu. Rev. Biochem. **40**, 787-9
2. Thiem, J. (1984) Nachr. Chem. Tech. Lab. **32**, 6-11
3. Sleiman, S.F. Et al. (2011) J. Neurosci. **31**, 6858-70

Cat.No.	Size	EUR
29803.01	2,5 mg	57,00
29803.02	10 mg	175,00



Neutral Red pure

(Basic Red 5; Toluylene Red; 3-Amino-7-dimethylamino-2-methylphenazinium-chloride)

C.I.50040 ♦ $C_{15}H_{17}N_4 \cdot Cl$ ♦ M_r 288.8 ♦ CAS [553-24-2]

EINECS 209-035-8 ♦ WGK 2L ♦ HS 32041300

Indicator pH 6.8 - 8.0. For use in histology and supravital staining.

Water (KF) max. 15.0 %

λ_{max}. 523 nm - 533 nm

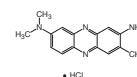
A 1 cm/0.001 % in water

528 nm min. 0.5

TLC homogeneous

ε_{528 nm/water} min. 14 440

Cat.No.	Size	EUR
30305.01	25 g	48,00



Nitro Blue tetrazolium chloride analytical grade

(NBT; Nitro BT; Nitroterazolium Blue chloride; Ditetrazolium dye)

$C_{40}H_{30}Cl_2N_{10}O_6$ ♦ M_r 817.7 ♦ CAS [298-83-9]



WARNING

H302-H332 ♦ EINECS 206-067-4 ♦ WGK 1 ♦

HS 29339980

Storage temperature +2 °C to +8 °C

A ditetrazolium compound for demonstrating succinic dehydrogenase activity (1). Glucose-6-phosphate dehydrogenase (2). Xanthine oxidase (3). Used in conjunction with BCIP (cat. no. 15247) for detection of alkaline phosphatase.

Stock solution: 50 mg/ml in 70 % DMF. Store at 4 °C or -20 °C.

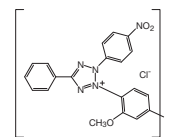
Staining solution for western blots: 66 μl NBT stock solution and 33 μl BCIP stock solution in 10 ml staining buffer (100 mM NaCl, 5 mM MgCl₂, 100 mM Tris; pH 9.5)

Purity min. 98.0 %

References:

1. Nachlas, M.M. et al. (1957) J. Histochem. Cytochem. **5**, 420-36
2. Negi, D.S. & Stephens, R.J. (1977) J. Histochem. Cytochem. **25**, 149-54
3. Auscher, C. & Amory, N. (1976) Biomedicine **5**, 37-8

Cat.No.	Size	EUR
30550.01	250 mg	23,00
30550.02	1 g	64,00
30550.03	5 g	263,00



Ponceau S

(Acid Red 112; Fast Ponceau 2B)

C.I.27195 ♦ $C_{22}H_{12}N_4O_{13}S_4 \cdot Na_4$ ♦ M_r 760.61 ♦

CAS [6226-79-5]



WARNING

H315-H319-H335 ♦ EINECS 228-319-2 ♦ WGK 2L

♦ HS 29270000

λ_{max}. 0.001 % in water 517- 523 nm

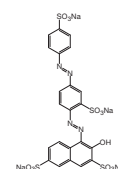
Water (KF) max. 15 %

A 1 cm/0.001 % in water/λ max. min. 0.355

ε_{λmax} in water min. 27 000

TLC corresponds

Cat.No.	Size	EUR
33429.01	5 g	19,00
33429.02	25 g	32,00



Albumins:
see special chapter at p. 276

Propidium iodide research grade

(3,8-Diamino-5-(3-[diethylmethylammonio]propyl)-6-phenylphenanthridinium diiodide)

C₂₇H₃₄N₄²⁺2I⁻ ♦ M_r 668.4 ♦ CAS [25535-16-4]



DANGER

H301-H315-H319-H331-H335-H

340 ♦ GGVSE/ADR 6.1 II UN2811 ♦ IATA 6.1 II UN2811 ♦

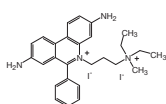
EINECS 247-081-0 ♦ WGK 2 ♦ HS 29239000

Storage temperature +2 °C to +8 °C

For selective labeling of DNA in dead cells; used in tumor diagnosis (flow cytometry) (1, 2). For the study of micronuclear morphology of protozoa (3).

References:

1. Valet, G. et al. (1987) Blut **49**, 37-43
2. ibid. (1984) J. Clin. Chem. Clin. Biochem. **22**, 935-42
3. Fox, D.P. et al. (1987) Stain Technol. **62**, 217-20



Cat.No.	Size	EUR
33671.01	25 mg	65,00
33671.02	100 mg	195,00

Resazurin-Na-salt analytical grade

(Diazoresorcinol)

C₁₂H₆NO₄Na ♦ M_r 251.2 ♦ CAS [62758-13-8]



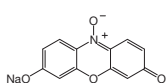
WARNING

H302-H315-H319-H335 ♦ EINECS 263-718-5

♦ HS 29349990

Indicator pH 3.8 - 6.5. Redox indicator.

Cat.No.	Size	EUR
34226.02	5 g	61,00



Safranin O pure

(Basic Red 2; 3,7-Diamino-2,8-dimethyl-5-phenylphenazinium-chloride; Safranin T)

C.I.50240 ♦ C₂₀H₁₉N₄Cl ♦ M_r 350.9 ♦ CAS [477-73-6]



WARNING

H315-H319-H335 ♦ EINECS 207-518-8 ♦ WGK 2L ♦ HS 32041300

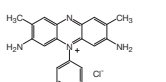
Dye for microscopy.

λmax. (0.001 % in water) 518 - 522 nm
 A 1 cm (λmax. /0.001 % in water) min. 0.9
 ε λmax. (in water) min. 31 580
 Water max. 15.0 %

References:

1. Lillie, E.D. (ed.) H.J. Conn's Biological Stains, 9th ed., p. 385-7

Cat.No.	Size	EUR
34598.01	10 g	24,00



Silver nitrate analytical grade

AgNO₃ ♦ M_r 169.89 ♦ CAS [7761-88-8]



DANGER

H272-H314-H318-H400-H410 ♦ MAK/TRK

0,01E ♦ EG-Index 047-001-00-2 ♦ GGVSE/

ADR 5.1 II UN1493 ♦ IATA 5.1 II UN1493 ♦ EINECS 231-853-9 ♦ WGK 3L ♦ HS 28342980

Assay min. 99.9 %

Cat.No.	Size	EUR
35110.01	25 g	50,00
35110.02	100 g	150,00

Staining Kit Gallein

HS 38220000

An alternative to nuclear staining with Hematoxylin. Nuclei will be coloured red. The kit contains 25 ml staining solution, 50 ml rinsing solution and 10 ml mounting medium.

Cat.No.	Size	EUR
23321.01	1 kit	32,00

Staining Kit Myrthilin

HS 38220000

An alternative to nuclear staining with Hematoxylin. Myrthilin is used as dye and the nuclei will be coloured purple. The kit contains 25 ml staining solution, 50 ml rinsing solution and 10 ml mounting medium.

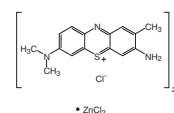
Cat.No.	Size	EUR
23322.01	1 kit	27,00

Toluidine Blue O salt

(Basic Blue 17; 2-Amino-7-dimethylamino-3-methylphenothiazinium chloride)

C.I.52040 ♦ C₁₅H₁₆ClN₃S ♦ M_r 305.8 ♦ CAS [92-31-9]

EINECS 202-146-2 ♦ WGK 2L ♦ HS 29349990



Methylhomologue of Azure A. For RNA staining and RNase detection in electrophoresis (1). Stain for oligodeoxyribonucleotides (2). Stain for acidic mucopolysaccharides (proteoglycans) (3) and RNA (4).

Water (KF) max. 10.0 %
 A 1 cm/0.001 % in water λ max. min. 0.8
 λmax. 0.001 % in water 622 - 638 nm

References:

1. Wilson, C.W. (1969) Anal. Biochem. **31**, 506-11
2. Elson, E. & Jovin, T.M. (1969) Anal. Biochem. **27**, 193-204
3. Rennert, O.M. (1967) Nature **213**, 1133
4. Konings R.N.H. & Bloemendal, H. (1965) Eur. J. Biochem. **7**, 165-73

Cat.No.	Size	EUR
36693.02	25 g	39,00

Additives and Auxiliaries

BEEM capsules 5.2 mm for EM-embedding

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size	EUR
43510.01	100 pieces	59,00

BEEM capsules 8.0 mm for EM-embedding

HS 39239000

Polyethylene with pyramidal tip and polyethylene cover.

Cat.No.	Size	EUR
43511.01	100 pieces	59,00

Cedar wood oil research grade, optically clear

CAS [85085-41-2]

WGK 2 ♦ HS 33019090

Immersion oil for microscopy.

Density (20 °C) 0.98 - 1.00
 Refractive index (20 °C) 1.510 - 1.520

Cat.No.	Size	EUR
38565.01	50 ml	20,00
38565.02	500 ml	34,00

Decal pract.



WARNING

H315-H319-H335 ♦ GGVSE/ADR 8 III UN1789 ♦ IATA 8 III UN1789 ♦ WGK 1 ♦ HS 38220000

For the rapid decalcification of histological sections. Contains max. 9.5 % hydrochloric acid and a catalytic calcium ion-chelating agent.

Cat.No.	Size	EUR
18140.02	500 ml	39,00

Decalcifier concentrate plus indicator

HS 38220000

pH-neutral decalcifying solution on the basis of an organic chelating agent. Depending on the calcium content the working concentration is 1:1 – 1:10. The solution contains an indicator, which changes the colour from purple to red, if the decalcifying solution is exhausted.

Cat.No.	Size	EUR
18141.01	100 ml	24,00

Dimethyl sulfoxide research grade

(DMSO)

C₂H₆OS ♦ M_r 78.1 ♦ CAS [67-68-5]



WARNING

H315-H319 ♦ MAK/TRK 160mg/m³ ♦ EINECS 200-664-3 ♦ WGK 1L
♦ HS 29309099

Highly active solvent and pharmaceutical vehicle; for freezing cells. For gradient centrifugation (1). Determination of cysteine and cystine in proteins (2).

Assay	min. 99.0 %
MP	min. 18.0 °C
d ₂₀ °C	1.1
Water (KF)	max. 0.3 %

References:

1. Kelly, R.B. & Sinsheimer, R.L. (1967) J. Mol. Biol. **29**, 229-36
2. Spencer, R.L. & Wold, F. (1969) Anal. Biochem. **32**, 185-90

Cat.No.	Size	EUR
20385.01	250 ml	15,00
20385.02	1 L	29,00

Gelatin capsules No. 0 for electron microscopy

HS 35030010

Volume	0.7 cm ³
Length	21.8 mm
Diameter	7.7 mm

Cat.No.	Size	EUR
43520.02	500 pieces	55,00

Gelatin, liquid

M_r ca. 60 000 ♦ CAS [9000-70-8]

HS 35030080

From fish skin. Solids content 44.0 - 46.0 %. Contains methyl-/propyl-PHB as preservative. Specially prepared and purified gelatin. Supplied as a pourable liquid. Completely water soluble, even at room temperature and at high concentrations. Acts as a protective colloid.

Cat.No.	Size	EUR
22156.01	100 ml	50,00
22156.02	500 ml	225,00

Polyethylene glycol 4000

(PEG 4000; Macrogol 4000; Macrogol)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 70 - 80.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M _r	3600 - 4400
Hydroxyl value	26.0 - 31.0
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size	EUR
33136.01	500 g	20,00
33136.02	5 kg	145,00

Polyethylene glycol 6000

(PEG 6000; Macrogol 6000)

CAS [25322-68-3]

EINECS 500-038-2(NLP) ♦ WGK 1L ♦ HS 34042000

USP, Ph.Eur. Degree of polymerization ca. 140 - 170.

Polyethylene glycol for chromatography, histology, microscopy and for special biochemical purposes.

Average M _r	5400 - 6600
Hydroxyl value	17.0 - 21.0
Heavy metals (Pb)	max. 5 ppm

Cat.No.	Size	EUR
33137.01	500 g	19,00
33137.02	5 kg	85,00

Ion Exchange Media

DOWEX® Ion Exchange Resins	376
SERDOLIT® Ion Exchange Resins	378
SERDOLIT® Polymeric Adsorbent Resins	379
SERDOLIT® Chelating Resins	380
SERVACEL® Cellulose Ion Exchangers	381

DOWEX® Ion Exchange Resins

DOWEX® resins are made of spherical particles. The benefit for the user is a highly efficient exchange process, due to optimal flow-through kinetics because of the round (spherical) particles.

We offer a broad range of DOWEX® ion exchangers (anion and cation) featuring small particle sizes and narrow particle size distributions (50 - 100 mesh, 100 - 200 mesh, 200 - 400 mesh). In addition, analytical grade qualities of DOWEX® resins are available. These products are processed from original DOWEX® (»practical grades«) resins, following a proprietary procedure developed by us.

DOWEX® 1 - anion exchangers of type I, strongly basic:

A series of gel ion exchangers based on styrene-DVB-copolymerisates of type I. Refers to U.S. Food Additive Regulations, Ref. 1.21.1148

Supplied form of all DOWEX® anionic resins:

- pract. grade = Cl⁻ form
- analytical grade = Cl⁻ form

Maximum working temperature for all DOWEX® anion resins listed:

- 100 °C for Cl⁻ form
- 60 °C for OH⁻ form

For other counter ions please inquire for special bulk production.

DOWEX® 50 W - cation exchangers, strongly acidic:

Spherical beads, sulfonated polystyrene/ DVB matrix.

Supplied form of all DOWEX® 50 W resins:

- pract. = H⁺ form
- analytical grade = Na⁺ form

Maximum working temperature for all DOWEX® cation resins listed:

- 120 °C for Na⁺ form
- 120 °C for H⁺ form

For other counter ions please inquire for special bulk production.

DOWEX® is a trademark of Dow Chemical Comp., Michigan, USA.

■ DOWEX® 1X2 (50-100 mesh) pract.

(Ion Exchange Media; DOWEX® Ion Exchange Resins; Anion Exchangers)
HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB
Capacity min. 0.7 eq/l
Loss on Drying 65 - 75 %

DOWEX® is a trademark of Dow Chemical Comp., Michigan, USA.

Cat.No.	Size	EUR
41010.01	100 g	67,00
41010.02	500 g	239,00

■ DOWEX® 1X2 (50-100 mesh) analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB
Capacity min. 0.7 eq/l
Loss on Drying 65 - 75 %

Cat.No.	Size	EUR
41011.01	100 g	99,00
41011.02	500 g	295,00

■ DOWEX® 1X2 (200-400 mesh) pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 70 - 80 %

Cat.No.	Size	EUR
41030.01	100 g	67,00
41030.02	500 g	205,00

■ DOWEX® 1X2 (200-400 mesh) analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 70 - 80 %

Cat.No.	Size	EUR
41031.01	100 g	99,00
41031.02	500 g	295,00

■ DOWEX® 1X8 (20-50 mesh) pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.3 eq/l
Loss on Drying 50 - 60 %

Cat.No.	Size	EUR
41080.03	100 g	52,00
41080.04	500 g	170,00

■ DOWEX® 1X8 (20-50 mesh) analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity 1.0 - 1.5 eq/l
Loss on Drying 50 - 60 %

Cat.No.	Size	EUR
41081.03	100 g	68,00
41081.04	500 g	250,00

■ DOWEX® 1X8 (50-100 mesh) pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.2 eq/l
Loss on Drying 43 - 47 %

Cat.No.	Size	EUR
41090.01	100 g	65,00
41090.02	500 g	225,00

■ **DOWEX® 1X8 (50-100 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.2 eq/l
Loss on Drying 45 - 55 %

Cat.No.	Size	EUR
41091.01	100 g	74,00
41091.02	500 g	285,00

■ **DOWEX® 1X8 (100-200 mesh)** pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.2 eq/l
Loss on Drying 39 - 45 %

Cat.No.	Size	EUR
41100.01	100 g	67,00
41100.02	500 g	232,00

■ **DOWEX® 1X8 (100-200 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity ca. 1.2 eq/l
Loss on Drying 39 - 50 %

Cat.No.	Size	EUR
41101.01	100 g	79,00
41101.02	500 g	315,00

■ **DOWEX® 1X8 (200-400 mesh)** pract.

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.2 eq/l
Loss on Drying 40 - 55 %

Cat.No.	Size	EUR
41110.01	100 g	71,00
41110.02	500 g	282,00

■ **DOWEX® 1X8 (200-400 mesh)** analytical grade

HS 39140000

Anion exchanger of type I, strongly basic.

Cross Linkage 8 % DVB
Capacity min. 1.2 eq/l
Loss on Drying 40 - 55 %

Cat.No.	Size	EUR
41111.01	100 g	85,00
41111.02	500 g	340,00

■ **DOWEX® 50 WX2 (50-100 mesh)** pract.

(Cation Exchangers)

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 74 - 82 %

Cat.No.	Size	EUR
41510.01	100 g	67,00
41510.02	500 g	232,00

■ **DOWEX® 50 WX2 (50-100 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 74 - 82 %

Cat.No.	Size	EUR
41511.01	100 g	79,00
41511.02	500 g	295,00

■ **DOWEX® 50 WX2 (100-200 mesh)** pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 74 - 82 %

Cat.No.	Size	EUR
41520.01	100 g	67,00
41520.02	500 g	232,00

■ **DOWEX® 50 WX2 (100-200 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 74 - 82 %

Cat.No.	Size	EUR
41521.01	100 g	79,00
41521.02	500 g	305,00

■ **DOWEX® 50 WX2 (200-400 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 2 % DVB
Capacity min. 0.6 eq/l
Loss on Drying 74 - 81 %

Cat.No.	Size	EUR
41531.01	100 g	80,00
41531.02	500 g	305,00

■ **DOWEX® 50 WX4 (50-100 mesh)** pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 4 % DVB
Capacity min. 1.1 eq/l
Loss on Drying 64 - 72 %

Cat.No.	Size	EUR
41550.01	100 g	67,00
41550.02	500 g	240,00

■ **DOWEX® 50 WX4 (50-100 mesh)** analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 4 % DVB
Capacity min. 1.1 eq/l
Loss on Drying 64 - 72 %

Cat.No.	Size	EUR
41551.01	100 g	79,00
41551.02	500 g	305,00

■ DOWEX® 50 WX8 (50-100 mesh) pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 50 - 60 %

Cat.No.	Size	EUR
41610.01	100 g	68,00
41610.02	500 g	215,00

■ DOWEX® 50 WX8 (50-100 mesh) analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 40 - 50 %

Cat.No.	Size	EUR
41611.01	100 g	79,00
41611.02	500 g	305,00

■ DOWEX® 50 WX8 (100-200 mesh) pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 50 - 58 %

Cat.No.	Size	EUR
41620.01	100 g	64,00
41620.02	500 g	200,00

■ DOWEX® 50 WX8 (100-200 mesh) analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 45 - 55 %

Cat.No.	Size	EUR
41621.01	100 g	77,00
41621.02	500 g	300,00

■ DOWEX® 50 WX8 (200-400 mesh) pract.

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 50 - 58 %

Cat.No.	Size	EUR
41630.01	100 g	69,00
41630.02	500 g	215,00

■ DOWEX® 50 WX8 (200-400 mesh) analytical grade

HS 39140000

Cation exchanger, strongly acidic.

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Loss on Drying 45 - 55 %

Cat.No.	Size	EUR
41631.01	100 g	79,00
41631.02	500 g	325,00

SERDOLIT® Ion Exchange Resins

Analytical Grade Qualities for the Laboratory

Ion exchangers are produced for technical purposes (practical grade). In this stage they contain a considerable amount of impurities which must be carefully removed for making them suitable for (bio)chemical purposes. In addition, smaller and better defined particle sizes are desirable. The SERDOLIT® resins have been purified with particular care to meet these requirements.

■ SERDOLIT® AS-1 analytical grade

(Ion Exchange Media; Anion Exchangers; SERDOLIT® Ion Exchange Resins)
HS 39140000

Strongly basic anion exchanger type I: $\text{CH}_2\text{-N}(\text{CH}_3)_3$. Supplied in chloride form.

Cross Linkage 6 % DVB
Capacity min. 1.0 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 45 - 55 %

Cat.No.	Size	EUR
45521.01	1 kg	196,00

■ SERDOLIT® CS-1 analytical grade

(Cation Exchangers)

HS 39140000

Strongly acidic cation exchanger.

Functional group: sulfonic acid. Supplied in sodium form (Na^+).

Cross Linkage 8 % DVB
Capacity min. 1.7 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 45 - 55 %

Cat.No.	Size	EUR
45530.01	1 kg	88,00

■ SERDOLIT® Blue analytical grade

HS 39140000

Strongly basic anion exchanger with exhausting indicator. Supplied in OH^- form. Exhausted colour: yellow.

Cross Linkage 6 % DVB
Capacity min. 0.8 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 60 - 70 %
Bulk density 720 g/l

Cat.No.	Size	EUR
45520.03	500 g	79,00
45520.02	1 kg	140,00

■ SERDOLIT® Red analytical grade

HS 39140000

Strongly acidic cation exchanger with exhaustion indicator. Supplied in hydrogen form. Colour in neutral form: dark yellow.

Cross Linkage 8 % DVB
Capacity min. 1.6 eq/l
Particle Size 16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying 50.0 - 60.0 %

Cat.No.	Size	EUR
45540.03	500 g	60,00
45540.02	1 kg	115,00

SERDOLIT® MB analytical grade

HS 39140000

Mixed-bed ion exchanger with exhaustion indicator composed of SERDOLIT® Blue (OH⁻-form) and SERDOLIT® CS-2 (H⁺-form) in a ratio at approx. 1.5:1 (v/v); ready-to-use, suitable for demineralizing water.

Capacity	min. 0.8 eq/l
Particle Size	16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying	55 - 65 %

Cat.No.	Size	EUR
45500.03	500 g	105,00
45500.02	1 kg	195,00

SERDOLIT® MB molecular biology grade

HS 39140000

DNase/RNase not detected. Mixed-bed ion exchanger with exhaustion indicator composed of SERDOLIT® Blue (OH⁻-form) and SERDOLIT® CS-2 (H⁺-form) in a ratio at approx. 1.5:1 (v/v); ready-to-use, suitable for demineralizing water, deionising formamide, acrylamide, glyoxal, PEG and urea.

Capacity	min. 0.8 eq/l
Particle Size	16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying	50 - 65 %

References:

1. Sambrook, Fritsch, Maniatis (1989) Molecular Cloning, Cold Spring Harbor Laboratory Press (p. 1.102)

Cat.No.	Size	EUR
39608.01	500 g	149,00

SERDOLIT® MB-1 analytical grade

HS 39140000

Mixed-bed ion exchanger composed of a strongly acidic cation exchanger and a strongly basic anion exchanger (type I) in a ratio of 1:1.5 (v/v).

Capacity	min. 1.0 eq/l
Particle Size	16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying	55 - 65 %

Cat.No.	Size	EUR
40701.03	500 g	95,00
40701.02	1 kg	185,00

SERDOLIT® MB-2 analytical grade

HS 39140000

Mixed-bed ion exchanger similar to SERDOLIT® MB-1 but with a type II basic anion exchanger.

Capacity	min. 0.8 eq/l
Particle Size	16 - 50 mesh (0.3 - 1.2 mm)
Loss on Drying	50 - 60 %

Cat.No.	Size	EUR
40711.03	500 g	100,00
40711.02	1 kg	190,00

SERDOLIT® Polymeric Adsorbent Resins

Whereas with ion exchangers (mainly) charged molecules can be adsorbed and/or separated, neutral adsorbent resins (Polymeric Adsorbents: SERDOLIT® PAD Resins) can be used for the extraction and in some cases even for separation of neutral, basic and acidic substances. This adsorption process often is performed with compounds which are dissolved in water or in a solution which does not contain too much of an organic solvent that might prohibit the interaction (van der Waals forces, hydrophobic, hydrogen bridges) between adsorbent and adsorbate.

We offer two types of SERDOLIT® PAD Resins: polar and apolar. The unpolar types (SERDOLIT® PAD I, II, III) are copolymerisates of polystyrene and DVB, whereas the polar is a polymerized methacrylic acid ester (SERDOLIT® PAD IV).

Apolar resins (PAD I - III) bind organics from water, polar SERDOLIT® PAD IV even from organic solvents. Unwanted substances (impurities, salts) are eluted with water, the enriched compound(s) with water mixable organic solvents. Their elutotropic forces are known from chromatographic experience. Acidic molecules are best eluted with basic eluents, basic molecules under acidic conditions.

SERDOLIT® PAD I, 0.1 - 0.2 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Recommended as alternative product to replace SERDOLIT® AD-2.

Particle Size	0.1 - 0.2 mm
Spec. Surface	min. 250 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	40 - 50 %

Cat.No.	Size	EUR
42443.01	100 g	180,00

SERDOLIT® PAD I, 0.3 - 1.0 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Recommended as alternative product to replace AMBERLITE® XAD-2 and SERDOLIT® AD-2.

Particle Size	0.3 - 1.0 mm
Spec. Surface	min. 250 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	40 - 50 %

Cat.No.	Size	EUR
42442.01	100 g	84,00

SERDOLIT® PAD II, 0.1 - 0.2 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Larger surface than SERDOLIT® PAD I.

Particle Size	0.1 - 0.2 mm
Spec. Surface	min. 400 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	40 - 50 %

Cat.No.	Size	EUR
42446.01	100 g	180,00

Order SERVA products
in bulk quantities
for an even better price.

■ SERDOLIT® PAD II, 0.3 - 1.0 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Larger surface area than SERDOLIT® PAD I.

Particle Size	0.3 - 1.0 mm
Spec. Surface	min. 400 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	30 - 40 %

Cat.No.	Size	EUR
42445.01	100 g	84,00

■ SERDOLIT® PAD III, 0.1 - 0.2 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Extremely large specific surface resulting in high adsorption capacity and kinetics.

Particle Size	0.1 - 0.2 mm
Spec. Surface	min. 800 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	45 - 55 %

Cat.No.	Size	EUR
42449.01	100 g	185,00

■ SERDOLIT® PAD III, 0.3 - 1.0 mm analytical grade

HS 39140000

Apolar polystyrene/DVB matrix, macroporous. Extremely large specific surface resulting in high adsorption capacity and kinetics.

Particle Size	0.3 - 1.0 mm
Spec. Surface	min. 800 m ² /g
Pore Size	ca. 25 nm
Loss on Drying	45 - 55 %

Cat.No.	Size	EUR
42448.01	100 g	105,00

■ SERDOLIT® PAD IV, 0.3 - 1.0 mm analytical grade

HS 39140000

Polar adsorbent, prepared from acrylic ester/DVB copolymerisate, macroporous. Recommended as alternative product to replace AMBERLITE® XAD-7 and SERDOLIT® AD-7.

Particle Size	0.3 - 1.0 mm
Spec. Surface	min. 250 m ² /g
Pore Size	ca. 20 nm
Loss on Drying	45 - 55 %

Cat.No.	Size	EUR
42450.01	100 g	87,00

SERDOLIT® Chelating Resins

■ SERDOLIT® Chelate® CHE analytical grade

HS 39140000

Macroporous (macroreticular) polystyrene based resin derivatized with iminodiacetic acid groups. High affinity for heavy metal cations over alkali or alkaline earth metals. The macroreticular structure provides high resistance to osmotic shock and short ion diffusion paths resulting in improved kinetics. The apparent selectivity for a given metal depends upon concentration, the presence of other species, and pH. The affinity of the resin for a given metal can be increased or decreased by adjusting the pH. Many feed streams contain particular matter which can clog the exchanger bed. Backwashing is necessary at regular intervals. If glass columns are used, the swelling (hydraulic expansion) of the resin must be considered. The resin swells 100 % during change from the hydrogen to monovalent salt form. Thus regeneration is best done in a funnel first with 10 % acid, then 10 % caustic and finally water to neutrality of the eluent.

To obtain the desired pH, buffer solutions are preferably used. As an example, for pH 4, 10 bed volumes of a 0.5 M solution of NaH₂PO₄/Na₂HPO₄ adjusted to pH 4 and finally 10 volumes of water are percolated. As SERDOLIT® Chelate® CHE has an extremely high affinity for polyvalent cations, the amount of regenerant is higher than required for conventional weakly acidic ion exchange resins.

Maximum working temperature:

90 °C Na⁺ form; 70 °C H⁺ form.

Cross Linkage	6 % DVB
Capacity	1.2 eq/l
Particle Size	20 - 50 mesh (0.3 - 0.8 mm)
Loss on Drying	65 - 75 %

Cat.No.	Size	EUR
40581.01	250 g	69,00
40581.02	1 kg	226,00

■ SERDOLIT® Chelate® P analytical grade

HS 39140000

Off-white beads with a macroporous resin structure and a general affinity for polyvalent metal cations which may be employed for special techniques (e.g. ⁹⁰Sr⁺⁺ determination).

Styrene-DVB matrix with aminomethylphosphonic acid groups. Sodium form. The total capacity, expressed in g Cu/l is 45. Maximum working temperature: 65 °C. Complete desorption can be effected by 5 volumes of 2N HCl.

Capacity	min. 1.1 eq/l
Particle Size	20 - 50 mesh (0.3 - 0.8 mm)
Loss on Drying	60 - 70 %

Cat.No.	Size	EUR
41706.01	250 g	62,00
41706.02	1 kg	219,00

SERVACEL® Cellulose Ion Exchangers

Cellulose ion exchangers have a very loose hydrophilic network (no pores) with well separated charged groups. Ionic macro(bio)molecules are adsorbed to only a few sites which can be desorbed selectively under extremely mild conditions with high recoveries. pH stability is excellent between 3 and 12. Storage of DEAE-cellulose in 2 M NaOH for 4 months at 50 °C does not change capacity for proteins. In order to provide greater stability and pressure resistance, the cellulose matrix can be produced in »regenerated« microcrystalline form. Here the particles are granular and the amorphous (fibrous) part of the cellulose fibers is removed. For additional stabilization the fibers are crosslinked.

SERVACEL® CM 52 and DEAE 52 are microcrystalline and thus allow a more dense packing: a superior resolution can be obtained compared with fibrous material. In addition, they are supplied in pre-swollen form to facilitate handling: they are ready-to-use after equilibration with the selected buffer system. They do not require the time consuming „pre-cycling“ procedure (washing with acid resp. alkali) which is necessary with cellulose ion exchangers supplied as dry powder.

CM-Cellulose - Cation exchangers (acidic type):

Cellulose is derivatized with **CarboxyMethylchloride**. The resulting weakly acidic high capacity exchanger can be used for neutral and basic proteins, peptides, lipids.

DEAE-Cellulose - Anion exchangers (basic types):

DiEthylAminoEthyl-groups are covalently bound to the cellulose hydroxylic groups. This anion exchanger can be applied for the chromatography of proteins with neutral or acidic isoelectric points (IP), which can easily be determined by isoelectric focusing electrophoresis (IEF). Serum components, enzymes, peptides, polysaccharides, RNA-types, viruses, lipids and ribosomes have been separated. DEAE cellulose is suitable for purification of nucleic acids.

■ CM 52-Cellulose SERVACEL®

(Carboxymethyl cellulose; Cellulose Ion Exchange Media; SERVACEL®)
HS 39129090

Granular microcrystalline, cross-linked, preswollen and ready to use.

Capacity min. 0.9 meq/g of dry weight
Moisture 70 - 80 %

Cat.No.	Size	EUR
45029.01	100 g	125,00
45029.02	500 g	437,00

■ DEAE 52-Cellulose SERVACEL®

(Diethylaminoethyl cellulose; SERVACEL® Cellulose Ion Exchangers)
HS 39129090

Granular microcrystalline, cross-linked, pre-swollen and ready to use.

Capacity min. 0.9 meq/g dry weight
Moisture 70 - 80 %

Cat.No.	Size	EUR
45059.01	100 g	90,00
45059.02	500 g	375,00

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Erläuterungen zum Produkteintrag

1. N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid

2. analytical grade

3. (HEPES)

4. $C_8H_{18}N_2O_4S$ M_r 238.3 $\diamond$ CAS [7365-45-9]

7. EINECS 230-907-9 $\diamond$ WGK 1L $\diamond$ HS 29335995

pKa 20= 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

280 nm

Heavy metals (Pb)

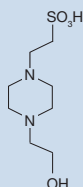
pH 10 % in water

max. 0.1

max. 0.08

max. 10 ppm

5.0 - 6.5



References:

1. Good, N.E. et al. (1966) Biochemistry **5**, 467-77
2. Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
3. Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

Glucose oxidase from *Aspergillus niger* ca. 220 U/mg

lyophil.

11. EC 1.1.3.4

12. Storage temperature -15 °C to -25 °C *

Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

14. C.I.20470 $\diamond$ $C_{22}H_{14}N_6O_9S_2 \cdot Na_2$ M_r 616.5 $\diamond$

Acrylamide 4X analytical grade

C_3H_5NO M_r 71.1 $\diamond$ CAS [79-06-1]

DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372

Muta. 1B, Carc. 1B, Repr. 2 $\diamond$ MAK/TRK 0,03 mg/m³

EG-Index 616-003-00-0 $\diamond$ EINECS 201-173-7

GGVSE/ADR 6.1 III UN2074 $\diamond$ IATA 6.1 III UN2074 $\diamond$

WGK 3L



8. Produktbeschreibung

Mit Anwendungshinweisen, Literaturziten, chemischen und physikalischen Spezifikationen

9. Strukturformel

10. Katalognummer, Abpackungen, Preise (EUR)

Viele unserer Produkte sind auch in größeren Mengen als jeweils im Katalog angegeben zu günstigeren Konditionen lieferbar. Bitte fragen Sie nach »Bulk Quantities«.

11. EC-Nummer

Enzyme-Klassifizierungsnummer

12. Lagertemperatur

Ist bei einem Produkt keine spezielle Lagertemperatur angegeben, erfolgt die Lagerung bei Raumtemperatur.

13. Kühlsendung

Besonders empfindliche Präparate werden gekühlt (*) oder gefroren (**) verschickt. Die Haltbarkeit bei Trockeneisversand beträgt bei ca. 30 °C Außentemperatur mindestens 48 Stunden.

Für Trockeneislieferungen berechnen wir eine Pauschale.

14. CI-Nummer

Farbenindexnummer (Colour Index)

15. Einstufung gefährlicher Stoffe/ Gemische

Das europäische System zur global harmonisierten Einstufung, Kennzeichnung und Verpackung von Stoffen und Gemischen (GHS/CLP) basiert auf der seit dem 20. Januar 2009 in Kraft getretenen Verordnung (EG) Nr. 1272/2008 (europäische CLP-Verordnung) des europäischen Parlaments und des Rates. SERVAs Stoffe und Gemische werden seit Dezember 2010 gemäß dieser Verordnung eingestuft, gekennzeichnet und verpackt.

Ziel der Verordnung ist es, ein hohes Schutzniveau für die menschliche Gesundheit und für die Umwelt sicherzustellen. Außerdem wird eine weltweite Harmonisierung von Vorschriften für die Einstufung und Kennzeichnung von chemischen Stoffen und Gemischen erreicht.

Nach CLP-Verordnung Anhang V sind die gefährlichen Stoffe und Gemische mit folgenden Gefahrenpiktogrammen zu kennzeichnen:

GHS01	GHS06
GHS02	GHS07
GHS03	GHS08
GHS04	GHS09
GHS05	

1. Produktname

2. Reinheitsgrad

analytical grade

Standardqualität für analytische Arbeiten

research grade (reinst)

Hochwertige Qualität für Forschung und Produktion

molecular biology grade

Laboratoriumsreagens für die molekularbiologische Forschung, getestet auf Abwesenheit von DNAsen und RNAsen

pure (rein)

Gereinigt Reagens für universellen Einsatz

pract.

Reagens für synthetische Zwecke

Nur einwandfreie, unseren Spezifikationen entsprechende Ware wird für den Verkauf freigegeben.

Jedes Produkt enthält eine Chargenkennzeichnung, die auf dem Etikett als Zahlencode oder Zahlen- und Buchstabencode vermerkt ist (im Falle einer Rückfrage bitte angeben).

3. Synonyme

4. Summenformel

5. Molekulargewicht

Relative Molekülmasse

6. CAS-Nummer

Registriernummer des Chemical Abstracts Service. Die CAS-Nummern dienen zur Sicherstellung der Identität chemischer Verbindungen.

7. HS-Nummer

Harmonisiertes System zur Bezeichnung und Zuordnung der Waren im Internationalen Handel (= Zolltarif-Nummer)

16. R-Begriffsbestimmungen in Verordnung (EG) Nr. 1272/2008, die Einstufung und Kennzeichnung gefährlicher Stoffe und Gemische betreffend

Signalwort:

Gefahr: Signalwort für die schwerwiegenden Gefahrenkategorien

Achtung: Signalwort für die weniger schwerwiegenden Gefahrenkategorien

Gefahrenhinweise (H-Sätze):

Beschreiben die Art und gegebenenfalls den Schweregrad der von einem gefährlichen Stoff oder Gemisch ausgehenden Gefahr.

Sicherheitshinweise (P-Sätze):

Textaussagen, die eine (oder mehrere) empfohlene Sicherheitsmaßnahme(n) beschreiben.

Gemische:

Gemische oder Lösungen, die aus zwei oder mehr Stoffen bestehen

SVHC:

Besonders besorgniserregende Substanz der sogenannten Kandidatenliste für die mögliche Aufnahme in das Verzeichnis der zulassungspflichtigen Stoffe (Anhang XIV der Verordnung (EG) Nr. 1907/2006). Die Stoffe erfüllen mindestens eines der in Artikel 57 dieser Verordnung angegebenen Kriterien:

- krebserzeugend
- erbgutverändernd
- fortpflanzungsgefährdend
- persistent, bioakkumulierbar und toxisch
- sehr persistent und sehr bioakkumulierbar
- wahrscheinlich mit schwerwiegenden Wirkungen auf die menschliche Gesundheit oder auf die Umwelt

Der Pflicht zur Weitergabe von Informationen über Stoffe gemäß Verordnung (EG) Nr. 1907/2006 bezüglich der sehr besorgniserregenden Stoffe kommt SERVA durch die Markierung dieser Stoffe mit SVHC nach.

17. EG-Index-Nummer

Kennnummer eines Stoffes oder einer bestimmten Stoffgruppe in der Liste der harmonisierten Einstufung und Kennzeichnung gefährlicher Stoffe im Anhang VI der Verordnung (EG) 1272/2008.

18. EG-Nummer

Offizielle Nummer des Stoffes in der Europäischen Union. Es werden drei Gruppen unterschieden:

- EINECS: kann dem Verzeichnis der auf dem Markt vorhandenen Stoffe entnommen werden, beginnend mit 200-001-8
- EILINCS: kann der Liste der angemeldeten Stoffe entnommen werden, beginnend mit 400-010-09
- NLP: kann der Liste »no-longer-polymer« entnommen werden, beginnend mit 500-001-0

19. Luftgrenzwert

Die Gefahrstoffverordnung unterscheidet nachfolgende Grenzwerte in der Luft am Arbeitsplatz:

AGW: Arbeitsplatzgrenzwert

Begriffsbestimmungen (Gefahrenkategorien) gemäß Anhang I der Verordnung (EG) Nr. 1272/2008

Karzinogen

Ein Stoff oder ein Gemisch, der/das Krebs erzeugen oder die Krebshäufigkeit erhöhen kann, wird als karzinogen angesehen (differenziert als Kategorie 1A, 1B und Kategorie 2)

Mutagen

wird bei Stoffen verwendet, die zu einer gesteigerten Mutationshäufigkeit in Zellpopulationen und/oder Organismen führen (differenziert als Kategorie 1A, 1B und Kategorie 2).

Reproduktionstoxizität:

Beeinträchtigungen von Sexualfunktion und Fruchtbarkeit bei Mann und Frau sowie Entwicklungstoxizität bei den Nachkommen (differenziert als Kategorie 1A, 1B und Kategorie 2).

20. Gefahrgut-Transport

Gegenstände oder Stoffe, welche in der Lage sind, ein Risiko für Gesundheit, Sicherheit, Eigentum oder die Umwelt darzustellen und die in den Verzeichnissen gefährlicher Güter der Gefahrgutvorschriften des angewendeten Verkehrsträgers aufgeführt oder die entsprechend dieser Vorschriften klassifiziert sind.

UN-Nummer

Vierstellige Ziffer, die einem Stoff oder einer bestimmten Stoffgruppe vom UN-Sachverständigenausschuss für den Gefahrguttransport zur Identifizierung zugeordnet wurde.

Die vorangestellten Buchstaben „UN“ müssen bei Verwendung dieser Nummer immer mit angegeben werden.

ID-Nummer

Die ID-Nummer ist eine vorläufige Identifizierungsnummer in der 8000er Serie der IATA, für einen Gegenstand oder Stoff, der noch keiner UN-Nummer zugeordnet wurde. Die vorangestellten Buchstaben „ID“ müssen bei Verwendung immer mit angegeben werden.

Die Gefahrgüter sind für alle Verkehrsträger einheitlich in UN-Gefahrenklassen eingeteilt, einige sind weiter in Unterklassen differenziert:

Klasse	Beschreibung
1	Explosive Stoffe u. Gegenstände mit Explosivstoff
2	Gase
3	Entzündbare flüssige Stoffe
4.1	Entzündbare feste Stoffe, selbstzersetzliche Stoffe und desensibilisierte explosive feste Stoffe
4.2	Selbstentzündliche Stoffe
4.3	Stoffe, die in Berührung mit Wasser entzündbare Gase bilden
5.1	Entzündend (oxidierend) wirkende Stoffe
5.2	Organische Peroxide
6.1	Giftige Stoffe
6.2	Ansteckungsfähige Stoffe
7	Radioaktive Stoffe
8	Ätzende Stoffe
9	Verschiedene gefährliche Stoffe und Gegenstände

Verpackungsgruppen

Gefahrgüter sind einer dem Grad der von ihnen ausgehenden Gefahr entsprechenden Verpackungsgruppe zugeteilt:

Verpackungsgruppe I - hohe Gefahr
Verpackungsgruppe II - mittlere Gefahr
Verpackungsgruppe III - geringe Gefahr

Für diese Gefahrgutverpackungen berechnen wir eine Kostenpauschale von EUR 30,00.

Gefahrgutvorschriften differenziert nach den Verkehrsträgern :

Straße:

ADR europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße (ADR).

Schiene:

RID Ordnung über die internationale Eisenbahnbeförderung gefährlicher Güter

Binnenwasserstraße:

ADN Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf Binnenwasserstraßen

See:

IMDG-Code Internationaler Code für die Beförderung gefährlicher Güter mit Seeschiffen

Luft:

IATA-DGR Gefahrgutvorschriften der IATA - Fluggesellschaften

Gefahrgüter können sicher transportiert werden, vorausgesetzt, dass einige Grundsätze genau befolgt werden.

Die richtige Deklaration durch den Versender gewährleistet, dass alle am Transportablauf Beteiligten wissen, welches Gefahrgut sie transportieren und was bei einem Vorfall oder Unfall am Boden oder im Flug zu tun ist.

Gefahrgüter sind normalerweise in UN-leistungsgeprüften Spezifikationsverpackungen verpackt. Solche sind nicht erforderlich, wenn Gefahrgut in „begrenzten Mengen“ oder „freigestellten Mengen“ transportiert wird.

Für diese Gefahrgutverpackungen berechnen wir eine Kostenpauschale.

21. WGK

Die wassergefährdenden Stoffe werden nach der Novelle VwVwS vom 27. Juli 2005 entsprechend ihrer Gefährlichkeit in eine der folgenden Wassergefährdungsklassen eingestuft:

WGK 3: stark wassergefährdend

WGK 2: wassergefährdend

WGK 1: schwach wassergefährdend

Key to Product Entries

1 N-(2-Hydroxyethyl)piperazine-N'-2-ethane sulfonic acid

2 analytical grade

3 (HEPES)

4 $C_8H_{18}N_2O_4S$ M_r 238.3 $\diamond$ CAS [7365-45-9]

7 EINECS 230-907-9 $\diamond$ WGK 1L $\diamond$ HS 29335995

pKa 20= 7.55. Buffering substance (1). Tested for use in tissue culture (2). Physical parameters (3).

Assay (titr.) min. 99.0 %

A 1 cm/10 % in water

260 nm

280 nm

Heavy metals (Pb)

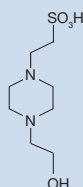
pH 10 % in water

max. 0.1

max. 0.08

max. 10 ppm

5.0 - 6.5



References:

- Good, N.E. et al. (1966) Biochemistry **5**, 467-77
- Shipman jr., Ch. (1969) Proc. Soc. Exp. Biol. Med. **130**, 305-10
- Vega, C.A. & Bates, R.G. (1976) Anal. Chem. **48**, 1293-6

Cat.No.	Size	EUR
25245.02	25 g	19,00
25245.03	100 g	30,00
25245.04	250 g	65,00
25245.05	1 kg	185,00
25245.06	5 kg	740,00

Glucose oxidase from *Aspergillus niger* ca. 220 U/mg

lyophil.

11 EC 1.1.3.4

12 Storage temperature -15 °C to -25 °C *

Amido Black 10 B

(Acid Black 1; Naphthalene Black B; Naphthol Blue Black B; Buffalo Black NBR)

14 C.I.20470 $\diamond$ $C_{22}H_{14}N_6O_9S_2Na_2$ M_r 616.5 $\diamond$

Acrylamide 4X analytical grade

C_3H_5NO M_r 71.1 $\diamond$ CAS [79-06-1]

15 DANGER

H301-H312-H315-H317-H319-H332-H340-H350-H361f-H372

Muta. 1B, Carc. 1B, Repr. 2 $\diamond$ MAK/TRK 0,03 mg/m³

17 EG-Index 616-003-00-0 $\diamond$ EINECS 201-173-7

20 GGVSE/ADR 6.1 III UN2074 $\diamond$ IATA 6.1 III UN2074 $\diamond$

WGK 3L

1. Product Name

2. Quality Characteristics

analytical grade

High quality reagent for analytical work.

research grade

High quality laboratory reagent for research and production.

molecular biology grade

High quality laboratory reagent for molecular biology research, DNase/RNase activity: none detected.

Pure

Multi-purpose reagent, purified.

pract.

Reagent for use in syntheses.

Only items which have been approved and which comply to our specifications are released for sale.

Each product has a lot indication marked on the label as a code which is needed as a reference for all claims.

3. Synonyma

4. Molecular Formula

5. Molecular Weight

Relative Molecular Mass

6. CAS Number

Chemical Abstracts Service Number

7. HS Numbers

Product numbers according to International Agreements on Tariffs.

8. Product Description

Including applications, literature references, chemical and physical parameters.

9. Structural Formula

10. Catalog Number, Package Sizes and Prices (EUR)

Please ask for quantities others than those stated here-many of our products are available at favorable bulk prices.

11. EC-Number

Enzyme Classification Number

12. Storage Temperature

13. Refrigerated Shipments

If necessary our products are shipped chilled (*) or frozen (**) in containers withstanding ambient temperatures up to 30 °C for a minimum of 48 hours. A surplus fee is applicable.

14. CI-Number

Colour Index Number

15. Classification of hazardous substances and mixtures

The european system on globally harmonised classification, labelling and packaging of substances and mixtures (GHS/CLP) bases on Regulation (EC) No.1272/2008 (CLP-Regulation) which has become effective on 20th January 2009. SERVA's substances and mixtures are classified, labelled and packaged according to this regulation.

It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labelling of substances and mixtures.

According to Annex V of this regulation the hazardous substances and mixtures have to be labeled with the hazard Pictograms as given below:

GHS01	GHS06
GHS02	GHS07
GHS03	GHS08
GHS04	GHS09
GHS05	

16. Definitions in Regulation (EC) No 1272/2008 concerning the classification of hazardous Substances and mixtures.

Signal word:

Danger: a signal word indicating the more severe hazard categories

Warning: a signal word indicating the less severe hazard categories

Hazard statements (H-Phrases):

Describe the nature of the hazards of a hazardous substance or mixture, including, where appropriate, the degree of hazard

Precautionary statements (P-Phrases):

A phrase that describes recommended safety measure(s)

Mixture:

A mixture or solution composed of two or more substances

SVHC:

Substance of very high concern on the so called candidate list for a possible inclusion in the list of substances subject to authorisation (annex XIV of Regulation (EC) No. 1907/2006). Substances included on this list meet at least one of the criteria given in Article 57 of this regulation:

- carcinogenic
- mutagenic
- toxic for reproduction
- persistent, bioaccumulative and toxic
- very persistent and very bioaccumulative
- probable serious effects to human health or the environment

Referring to the duty to communicate informations on substances according to Regulation (EC) No. 1907/2006 regarding the substances of very high concern, SERVA marks these substances with SVHC.

17. EG Index Number

Number given by the list of appendix I of the Guideline No. 67/548/EWG (European Economic Community) respectively regulation (EG) No. 1272/2008.

18. EG Number

It is the official number of the substance within the European Union. The numbers are divided into three groups:

- 1) EINECS: The EINECS number can be obtained from the European Inventory of Existing Commercial Chemical Substance (EINECS), numbers start at 200-001-8
- 2) ELINCS: The ELINCS number can be obtained from the European List of Notified Substances, numbers start at 400-010-9
- 3) NLP: The NLP number can be obtained from the list of 'No-longer-polymers', numbers start at 500-001-0

19. Thresholds

The Hazardous Substances Ordinance provides the following definitions for a hazard present in the air at site of work (acc. To German official standards):

OELV: occupational exposure limit value

Definitions and hazard categories according to Annex I of Regulation (EC) No 1272/2008

Carcinogen means a substance or a mixture of substances which induce cancer or increase its incidence (distinguished as Category 1A, 1B and Category 2).

Mutagen used for agents giving rise to an increased occurrence of mutations in populations of cells and/or organisms (distinguished as Category 1A, 1B and Category 2).

Reproductive toxicity: Adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring (distinguished as Category 1A, 1B and Category 2).

20. Dangerous Goods Transport

Dangerous goods are articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods of the applied mode of transport's Dangerous Goods Regulations or which are classified according to these Regulations

UN-Number

The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances. The prefix „UN“ must always be used in conjunction with these numbers.

ID-Number

The ID-Number is a temporary identification number (ID) in the 8000 series assigned to an article or substance for which no UN-number has been assigned. The prefix „ID“ must always be used in conjunction with these numbers.

The dangerous goods are divided for all modes of transport in the following UN hazard classes, some are further distinguished in sub-divisions.

Class	Description
1	Explosives
2	Gases
3	Flammable liquids
4.1	Flammable solids, self-reactive substances and solid desensitized explosives
4.2	Substances liable to spontaneous combustion
4.3	Substances which, in contact with water, emit flammable gases
5.1	Oxidizers
5.2	Organic peroxides
6.1	Toxic substances
6.2	Infectious substances
7	Radioactive material
8	Corrosives
9	Miscellaneous dangerous goods

Packing Groups

Dangerous goods are assigned to the relevant packing group according to the degree of hazard they present:

Packing group I	- high danger
Packing group II	- medium danger
Packing group III	- low danger

Dangerous Goods Regulations distinguished as the modes of transport:**Road:**

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

Rail:

RID Regulations concerning the International Carriage of Dangerous Goods by Rail

Inland waterway:

ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

Sea:

IMDG-Code International Maritime Dangerous Goods Code

Air:

IATA DGR International Air Transport Association Dangerous Goods Regulations

Dangerous goods can be transported safely provided when certain principles are strictly followed.

The proper declaration of dangerous goods by the shipper ensures that all in the transportation chain know what dangerous goods they are transporting and what to do if an incident or accident occurs in flight or on the ground.

Dangerous goods normally are packed in UN performance-tested specification packagings. These are not required when dangerous goods are shipped in „limited quantities“ or „excepted quantities“.

We reserve the right to ask for a surcharge for packaging suited for transportation of dangerous goods.

21. W GK

Water endangering substances are classified in compliance according to their hazardous properties:

WGK 3:	extremely hazardous for water
WGK 2:	hazardous for water
WGK 1:	slightly hazardous for water

Global Harmonisiertes Einstufungs- und Kenzeichnungssystem (GHS)

Gefahr		GHS01	H200, H201, H202, H203 H240 H241
Achtung		GHS01	H204
Gefahr		GHS02	H220, H222, H224 H225, H228, H229 H241, H242 H250, H251, H260, H261
Achtung		GHS02	H223, H226, H228, H229 H242, H252, H261
Achtung	Kein Piktogramm		H221, H229
Gefahr		GHS03	H270, H271, H272
Achtung		GHS03	H272
Achtung		GHS04	H280, H281
Gefahr		GHS06	H300, H310, H330 H301, H311, H331
Achtung		GHS07	H302, H312, H332
Gefahr		GHS08	H340, H350, H360, H370 H372, H334, H304
Achtung		GHS08	H341, H351, H361, H371 H373
Gefahr		GHS05	H314, H318
Achtung		GHS05	H290
Achtung		GHS07	H315, H319, H317, H335, H336, H420
Achtung		GHS09	H400, H410
Kein Signalwort		GHS09	H411

Die GHS Verordnung bzw. CLP (Regulation on Classification, Labelling and Packaging of Substances and Mixtures) Verordnung (EG) Nr. 1272/2008 ist am 20. Januar 2009 in Kraft getreten.

Durch diese Verordnung werden die Stoffrichtlinie 67/548/EWG und die Zubereitungsrichtlinie 1999/45/EG durch eine neue Verordnung über einen Zeitraum von einigen Jahren ersetzt und die Verordnung EG Nr. 1907/2006 (REACH) geändert.

Ziel der Verordnung ist es, ein hohes Schutzniveau für die menschliche Gesundheit und für die Umwelt sicherzustellen. Außerdem wird eine weltweite Harmonisierung von Vorschriften für die Einstufung und Kennzeichnung von chemischen Stoffen und Gemischen erreicht.

Wir möchten unseren Kunden mit diesen Informationen einen Einblick in die neue Systematik vermitteln und gleichzeitig die Möglichkeit bieten, sich mit den neuen Piktogrammen sowie H- (Gefahrenhinweise)- und P- (Sicherheitshinweise) Sätzen vertraut zu machen.

H-Sätze

Gefahrenhinweise für physikalische Gefahren

H200
Instabil, explosiv.

H201
Explosiv, Gefahr der Massenexplosion.

H202
Explosiv; große Gefahr durch Splitter, Spreng- und Wurfstücke.

H203
Explosiv; Gefahr durch Feuer, Luftdruck oder Splitter, Spreng- und Wurfstücke.

H204
Gefahr durch Feuer oder Splitter, Spreng- und Wurfstücke.

H205
Gefahr der Massenexplosion bei Feuer.

H220
Extrem entzündbares Gas.

H221
Entzündbares Gas.

H222
Extrem entzündbares Aerosol.

H223
Entzündbares Aerosol.

H224
Flüssigkeit und Dampf extrem entzündbar.

H225
Flüssigkeit und Dampf leicht entzündbar.

H226
Flüssigkeit und Dampf entzündbar.

H227
Brennbare Flüssigkeit.

H228
Entzündbarer Feststoff.

H229
Behälter steht unter Druck: Kann bei Erwärmung bersten.

H230
Explosionsgefahr selbst ohne Luftzufuhr.

H231
Explosionsgefahr selbst ohne Luftzufuhr bei erhöhtem Druck und / oder erhöhter Temperatur.

H240
Erwärmung kann Explosion verursachen.

H241
Erwärmung kann Brand oder Explosion verursachen.

H242
Erwärmung kann Brand verursachen.

H250
Entzündet sich in Berührung mit Luft von selbst.

H251
Selbsterhitzungsfähig; kann in Brand geraten.

H252
In großen Mengen selbsterhitzungsfähig; kann in Brand geraten.

H260
In Berührung mit Wasser entstehen entzündbare Gase, die sich spontan entzünden können.

H261
In Berührung mit Wasser entstehen entzündbare Gase.

H270
Kann Brand verursachen oder verstärken; Oxidationsmittel.

H271
Kann Brand oder Explosion verursachen; starkes Oxidationsmittel.

H272
Kann Brand verstärken; Oxidationsmittel.

H280
Enthält Gas unter Druck; kann bei Erwärmung explodieren.

H281
Enthält tiefkaltes Gas; kann Kälteverbrühungen oder -verletzungen verursachen.

H290
Kann gegenüber Metallen korrosiv sein.

Gefahrenhinweise für Gesundheitsgefahren

H300
Lebensgefahr bei Verschlucken.

H301
Giftig bei Verschlucken.

H302
Gesundheitsschädlich bei Verschlucken.

H303
Kann bei Verschlucken gesundheitsschädlich sein.

H304
Kann bei Verschlucken und Eindringen in die Atemwege tödlich sein.

H305
Kann beim Verschlucken und wenn es in die Atemwege gelangt gesundheitsschädlich sein.

H310
Lebensgefahr bei Hautkontakt.

H311
Giftig bei Hautkontakt.

H312
Gesundheitsschädlich bei Hautkontakt.

H313
Kann bei Berührung mit der Haut gesundheitsschädlich sein.

H314
Verursacht schwere Verätzungen der Haut und schwere Augenschäden.

H315
Verursacht Hautreizungen.

H316
Verursacht leichte Hautreizungen.

H317
Kann allergische Hautreaktionen verursachen.

H318
Verursacht schwere Augenschäden.

H319
Verursacht schwere Augenreizung.

H320
Verursacht Augenreizungen.

H330
Lebensgefahr bei Einatmen.

H331
Giftig bei Einatmen.

H332
Gesundheitsschädlich bei Einatmen.

H333
Kann beim Einatmen gesundheitsschädlich sein.

H334
Kann bei Einatmen Allergie, asthmaartige Symptome oder Atembeschwerden verursachen.

H335
Kann die Atemwege reizen.

H336
Kann Schläfrigkeit und Benommenheit verursachen.

H340
Kann genetische Defekte verursachen Expositionsweg angeben, sofern schlüssig belegt ist, dass diese Gefahr bei keinem anderen Expositionsweg besteht.

H341
Kann vermutlich genetische Defekte verursachen.

H350
Kann Krebs erzeugen.

H350i
Kann bei Einatmen Krebs erzeugen.

H351
Kann vermutlich Krebs erzeugen.

H351i
Kann bei Einatmen Krebs erzeugen.

H360
Kann die Fruchtbarkeit beeinträchtigen oder das Kind im Mutterleib schädigen.

H360D
Kann das Kind im Mutterleib schädigen.

H360Df
Kann das Kind im Mutterleib schädigen. Kann vermutlich die Fruchtbarkeit beeinträchtigen.

H360F
Kann die Fruchtbarkeit beeinträchtigen.

H360FD
Kann die Fruchtbarkeit beeinträchtigen. Kann das Kind im Mutterleib schädigen.

H360Fd

Kann die Fruchtbarkeit beeinträchtigen. Kann vermutlich das Kind im Mutterleib schädigen.

H361

Kann vermutlich die Fruchtbarkeit beeinträchtigen oder das Kind im Mutterleib schädigen.

H361d

Kann vermutlich das Kind im Mutterleib schädigen. **H361f**
Kann vermutlich die Fruchtbarkeit beeinträchtigen.

H361fd

Kann vermutlich die Fruchtbarkeit beeinträchtigen. Kann vermutlich das Kind im Mutterleib schädigen.

H362

Kann Säuglinge über die Muttermilch schädigen.

H370

Schädigt die Organe.

H371

Kann die Organe schädigen.

H372

Schädigt die Organe bei längerer oder wiederholter Exposition.

H373

Kann die Organe schädigen bei längerer oder wiederholter Exposition.

H300+H310

Lebensgefahr bei Verschlucken oder Hautkontakt.

H300+H310+H330

Lebensgefahr bei Verschlucken, Hautkontakt oder Einatmen.

H300+H330

Lebensgefahr bei Verschlucken oder Einatmen.

H301+H311

Giftig bei Verschlucken oder Hautkontakt.

H301+H311+H331

Giftig bei Verschlucken, Hautkontakt oder Einatmen.

H301+H331

Giftig bei Verschlucken oder Einatmen.

H302+H312

Gesundheitsschädlich bei Verschlucken oder Hautkontakt.

H302+H312+H332

Gesundheitsschädlich bei Verschlucken, Hautkontakt oder Einatmen.

H302+H332

Gesundheitsschädlich bei Verschlucken oder Einatmen.

H303+H313

Kann beim Verschlucken oder bei Berührung mit der Haut gesundheitsschädlich sein.

H303+H313+H333

Kann beim Verschlucken, bei Berührung mit der Haut oder beim Einatmen gesundheitsschädlich sein.

H303+H333

Kann beim Verschlucken oder beim Einatmen gesundheitsschädlich sein.

H310+H330

Lebensgefahr bei Hautkontakt oder Einatmen.

H311+H331

Giftig bei Hautkontakt oder Einatmen.

H312+H332

Gesundheitsschädlich bei Hautkontakt oder Einatmen.

H313+H333

Kann bei Berührung mit der Haut oder beim Einatmen gesundheitsschädlich sein.

H315+H320

Verursacht Haut- und Augenreizungen.

Gefahrenhinweise für Umweltgefahren**H400**

Sehr giftig für Wasserorganismen.

H401

Giftig für Wasserorganismen.

H402

Schädlich für Wasserorganismen.

H410

Sehr giftig für Wasserorganismen mit langfristiger Wirkung.

H411

Giftig für Wasserorganismen, mit langfristiger Wirkung.

H412

Schädlich für Wasserorganismen, mit langfristiger Wirkung.

H413

Kann für Wasserorganismen schädlich sein, mit langfristiger Wirkung.

H420

Schädigt die öffentliche Gesundheit und die Umwelt durch Ozonabbau in der äußeren Atmosphäre.

EUH-Sätze**Ergänzende Gefahrenmerkmale****EUH001**

In trockenem Zustand explosionsgefährlich. **EUH006**
Mit und ohne Luft explosionsfähig.

EUH014

Reagiert heftig mit Wasser.

EUH018

Kann bei Verwendung explosionsfähige/entzündbare Dampf/**Luft-Gemische bilden.**

EUH019

Kann explosionsfähige Peroxide bilden.

EUH029

Entwickelt bei Berührung mit Wasser giftige Gase.

EUH031

Entwickelt bei Berührung mit Säure giftige Gase.

EUH032

Entwickelt bei Berührung mit Säure sehr giftige Gase.

EUH044

Explosionsgefahr bei Erhitzen unter Einschluss.

EUH059

Die Ozonschicht schädigend.

EUH066

Wiederholter Kontakt kann zu spröder oder rissiger Haut führen.

EUH070

Giftig bei Berührung mit den Augen.

EUH071

Wirkt ätzend auf die Atemwege.

P-Sätze**Sicherheitshinweise****P101**

Ist ärztlicher Rat erforderlich, Verpackung oder Etikett bereithalten.

P102

Darf nicht in die Hände von Kindern gelangen.

P103

Vor Gebrauch Kennzeichnungsetikett lesen.

P201

Vor Gebrauch besondere Anweisungen einholen.

P202

Vor Gebrauch alle Sicherheitsratschläge lesen und verstehen.

P210

Von Hitze/Funken/offener Flamme/heißen Oberflächen fernhalten. Nicht rauchen.

P210a

Von Hitze fernhalten. Nicht rauchen.

P210b

Von Funken fernhalten. Nicht rauchen.

P210c

Von offener Flamme fernhalten. Nicht rauchen.

P210d

Von heißen Oberflächen fernhalten. Nicht rauchen.

P211

Nicht gegen offene Flamme oder andere Zündquelle sprühen.

P220

Von Kleidung/brennbaren Materialien fernhalten/entfernt aufbewahren.

P220a

Von Kleidung fernhalten.

P220b

Von brennbaren Materialien fernhalten.

P220c

Von Reduktionsmitteln, Schwermetallverbindungen, Säuren und Alkalien fernhalten.

P220d

Von oxidierenden und sauren Stoffen, sowie Schwermetallverbindungen fernhalten.

P220e

Von Eisen fernhalten.

P220f

Von Wasser fernhalten.

P220g

Von Säuren fernhalten.

P220h

Von Laugen fernhalten

P220i

Von Metallen fernhalten.

P220j

Von oxidierenden und sauren Stoffen fernhalten.

P220k

Von brennbaren organischen Substanzen fernhalten.

P220l

Von Säuren, Reduktionsmitteln und brennbaren Materialien fernhalten.

P221

Mischen mit brennbaren Stoffen unbedingt verhindern.

P222

Kontakt mit Luft nicht zulassen.

P223

Kontakt mit Wasser wegen heftiger Reaktion und möglichem Aufflammen unbedingt verhindern.

P230

Feucht halten mit ...

P230a

Feucht halten.

P231

Unter inertem Gas handhaben.

P232

Vor Feuchtigkeit schützen.

P233

Behälter dicht verschlossen halten.

P234

Nur im Originalbehälter aufbewahren.

P235

Kühl halten.

P240

Behälter und zu befüllende Anlage erden.

P241

Explosionssgeschützte elektrische Betriebsmittel/Lüftungsanlagen/Beleuchtung/verwenden

P242

Nur funkenfreies Werkzeug verwenden.

P243

Maßnahmen gegen elektrostatische Aufladungen treffen.

P244

Druckminderer frei von Fett und Öl halten.

P250

Nicht schleifen/stoßen/reiben.

P251

Behälter steht unter Druck: Nicht durchstechen oder verbrennen, auch nicht nach der Verwendung.

P260

Staub/Rauch/Gas/Nebel/Dampf/Aerosol nicht einatmen.

P260a

Staub nicht einatmen.

P260b

Rauch nicht einatmen.

P260c

Gas nicht einatmen.

P260d

Nebel nicht einatmen.

P260e

Dampf nicht einatmen.

P260f

Aerosol nicht einatmen.

P260g

Nebel/Dampf/Aerosol nicht einatmen.

P261

Einatmen von Staub/Rauch/Gas/Nebel/Dampf/Aerosol vermeiden.

P261a

Einatmen von Staub vermeiden.

P261b

Einatmen von Rauch vermeiden.

P261c

Einatmen von Gas vermeiden.

P261d

Einatmen von Nebel vermeiden.

P261e

Einatmen von Dampf vermeiden.

P261f

Einatmen von Aerosol vermeiden.

P261g

Einatmen von Nebel/Dampf/Aerosol vermeiden.

P262

Nicht in die Augen, auf die Haut oder auf die Kleidung gelangen lassen.

P263

Kontakt während der Schwangerschaft/und der Stillzeit vermeiden.

P264

Nach Gebrauch gründlich waschen.

P270

Bei Gebrauch nicht essen, trinken oder rauchen.

P271

Nur im Freien oder in gut belüfteten Räumen verwenden.

P272

Kontaminierte Arbeitskleidung nicht außerhalb des Arbeitsplatzes tragen.

P273

Freisetzung in die Umwelt vermeiden.

P280

Schutzhandschuhe/Schutzkleidung/Augenschutz/Gesichtsschutz tragen.

P280a

Schutzhandschuhe und Augenschutz / Gesichtsschutz tragen.

P280b

Schutzhandschuhe und Augenschutz tragen.

P280c
Schutzhandschuhe und Gesichtsschutz tragen.

P280d
Schutzkleidung und Augenschutz tragen.

P280e
Schutzkleidung und Gesichtsschutz tragen.

P280f
Schutzkleidung tragen.

P280g
Schutzhandschuhe tragen.

P280h
Schutzhandschuhe / Schutzkleidung tragen.

P280i
Augenschutz / Gesichtsschutz tragen.

P280j
Gesichtsschutz tragen.

P282
Schutzhandschuhe/Gesichtsschild/Augenschutz mit Kälteisolation tragen.

P283
Schwer entflammbare/flammhemmende Kleidung tragen.

P284
Atemschutz tragen.

P231
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

P232
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

P235
Kühl halten. Vor Sonnenbestrahlung schützen.

P410
Kühl halten. Vor Sonnenbestrahlung schützen.

P301
BEI VERSCHLUCKEN:

P302
BEI BERÜHRUNG MIT DER HAUT:

P303
BEI BERÜHRUNG MIT DER HAUT (oder dem Haar):

P304
BEI EINATMEN:

P305
BEI KONTAKT MIT DEN AUGEN:

P306
BEI KONTAMINierter KLEIDUNG:

P308
BEI Exposition oder falls betroffen

P310
Sofort GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P311
GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P312
Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P313
Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P314
Bei Unwohlsein ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P315
Sofort ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P320
Besondere Behandlung dringend erforderlich (siehe ... auf diesem Kennzeichnungsetikett).

P321
Besondere Behandlung (siehe ... auf diesem Kennzeichnungsetikett).

P330
Mund ausspülen.

P331
KEIN Erbrechen herbeiführen.

P332
Bei Hautreizung:

P333
Bei Hautreizung oder -ausschlag:

P334
In kaltes Wasser tauchen/nassen Verband anlegen.

P335
Lose Partikel von der Haut abbürsten.

P336
Vereiste Bereiche mit lauwarmem Wasser auftauen. Betroffenen Bereich nicht reiben.

P337
Bei anhaltender Augenreizung:

P338
Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen.

P340
Die betroffene Person an die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert.

P342
Bei Symptomen der Atemwege:

P351
Einige Minuten lang behutsam mit Wasser ausspülen.

P352
Mit viel Wasser und Seife waschen.

P353
Haut mit Wasser abwaschen/duschen.

P360
Kontaminierte Kleidung und Haut sofort mit viel Wasser abwaschen und danach Kleidung ausziehen.

P361
Alle kontaminierten Kleidungsstücke sofort ausziehen.

P362
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

P363
Kontaminierte Kleidung vor erneutem Tragen waschen.

P364
Und vor erneutem Tragen waschen.

P370
Bei Brand:

P371
Bei Großbrand und großen Mengen:

P372
Explosionsgefahr bei Brand.

P373
KEINE Brandbekämpfung, wenn das Feuer explosive Stoffe/Gemische/Erzeugnisse erreicht.

P374
Brandbekämpfung mit üblichen Vorsichtsmaßnahmen aus angemessener Entfernung.

P375
Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

P376
Undichtigkeit beseitigen, wenn gefahrlos möglich.

P377
Brand von ausströmendem Gas:
Nicht löschen, bis Undichtigkeit gefahrlos beseitigt werden kann.

P378
... zum Löschen verwenden.

P378a
Zum Löschen verwenden: CO₂, Löschpulver oder Wassersprühstrahl.

P378b
Zum Löschen verwenden: Spezialpulver für Metallbrände.

P378c
Zum Löschen verwenden: CO₂, Sand, Löschpulver.

P378d
Zum Löschen verwenden: Wasser.

P378e
Zum Löschen verwenden: Wassernebel.

P378f
Zum Löschen verwenden: Wassersprühstrahl.

P378g
Zum Löschen verwenden: Schaum.

P378h
Zum Löschen verwenden: Alkoholbeständiger Schaum.

P378i
Zum Löschen verwenden: Löschpulver.

P378j
Zum Löschen verwenden: BC-Pulver.

P378k
Zum Löschen verwenden: ABC-Pulver.

P378l
Zum Löschen verwenden: Kohlendioxid.

P378m
Zum Löschen verwenden: Kalksteinpulver.

P378n
Zum Löschen verwenden: Zement.

P378o
Zum Löschen verwenden: Sand.

P378p
Zum Löschen verwenden: Trockener Sand.

P380
Umgebung räumen.

P381
Alle Zündquellen entfernen, wenn gefahrlos möglich.

P390
Verschüttete Mengen aufnehmen, um Materialschäden zu vermeiden.

P391
Verschüttete Mengen aufnehmen.

P301 + P310
BEI VERSCHLUCKEN: Sofort GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P301 + P312
BEI VERSCHLUCKEN: Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P301 + P330 + P331
BEI VERSCHLUCKEN: Mund ausspülen. KEIN Erbrechen herbeiführen.

P302 + P334
BEI KONTAKT MIT DER HAUT: In kaltes Wasser tauchen/nassen Verband anlegen.

P302 + P352
BEI KONTAKT MIT DER HAUT: Mit viel Wasser und Seife waschen.

P303 + P361 + P353
BEI KONTAKT MIT DER HAUT (oder dem Haar): Alle verschmutzten, getränkten Kleidungsstücke sofort ausziehen. Haut mit Wasser abwaschen/duschen.

P304 + P312
BEI EINATMEN: Bei Unwohlsein GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P304 + P340
BEI EINATMEN: An die frische Luft bringen und in einer Position ruhigstellen, die das Atmen erleichtert.

P305 + P351 + P338
BEI KONTAKT MIT DEN AUGEN: Einige Minuten lang behutsam mit Wasser spülen. Vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen.

P306 + P360
BEI KONTAKT MIT DER KLEIDUNG: Kontaminierte Kleidung und Haut sofort mit viel Wasser abwaschen und danach Kleidung ausziehen.

P308 + P313
BEI Exposition oder falls betroffen: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P231+P232
Unter inertem Gas handhaben. Vor Feuchtigkeit schützen.

P332 + P313
Bei Hautreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P333 + P313
Bei Hautreizung oder -ausschlag: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P335 + P334
Lose Partikel von der Haut abbürsten. In kaltes Wasser tauchen/ nassen Verband anlegen.

P235+P410
Kühl halten. Vor Sonnenbestrahlung schützen.

P337 + P313
Bei anhaltender Augenreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

P342 + P311
Bei Symptomen der Atemwege: GIFTINFORMATIONSZENTRUM oder Arzt anrufen.

P361+P364
Alle kontaminierten Kleidungsstücke sofort ausziehen und vor erneutem Tragen waschen.

P362+P364
Kontaminierte Kleidung ausziehen und vor erneutem Tragen waschen.

P370 + P376
Bei Brand: Undichtigkeit beseitigen, wenn gefahrlos möglich.

P370 + P378
Bei Brand: ... zum Löschen verwenden.

P370+P378a
Bei Brand: Zum Löschen verwenden: CO₂, Löschpulver oder Wassersprühstrahl.

P370+P378b
Bei Brand: Zum Löschen verwenden: Spezialpulver für Metallbrände.

P370+P378c
Bei Brand: Zum Löschen verwenden: CO₂, Sand, Löschpulver.

P370+P378d
Bei Brand: Zum Löschen verwenden: Wasser.

P370+P378e
Bei Brand: Zum Löschen verwenden: Wassernebel.

P370+P378f
Bei Brand: Zum Löschen verwenden: Wassersprühstrahl.

P370+P378g
Bei Brand: Zum Löschen verwenden: Schaum.

P370+P378h
Bei Brand: Zum Löschen verwenden: Alkoholbeständiger Schaum.

P370+P378i
Bei Brand: Zum Löschen verwenden: Löschpulver.

P370+P378j
Bei Brand: Zum Löschen verwenden: BC-Pulver.

P370+P378k
Bei Brand: Zum Löschen verwenden: ABC-Pulver.

P370+P378l
Bei Brand: Zum Löschen verwenden: Kohlendioxid.

P370+P378m
Bei Brand: Zum Löschen verwenden: Kalksteinpulver.

P370+P378n
Bei Brand: Zum Löschen verwenden: Zement.

P370+P378o
Bei Brand: Zum Löschen verwenden: Sand.

P370+P378p
Bei Brand: Zum Löschen verwenden: Trockener Sand.

P370 + P380
Bei Brand: Umgebung räumen.

P370 + P380 + P375
Bei Brand: Umgebung räumen. Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

P371 + P380 + P375

Bei Großbrand und großen Mengen: Umgebung räumen. Wegen Explosionsgefahr Brand aus der Entfernung bekämpfen.

P401

... aufbewahren.

P401a

Gemäß örtlicher/regionaler/nationaler/internationaler Vorschrift lagern.

P402

An einem trockenen Ort aufbewahren.

P403

An einem gut belüfteten Ort aufbewahren.

P404

In einem geschlossenen Behälter aufbewahren.

P405

Unter Verschluss aufbewahren.

P406

In korrosionsbeständigem Behälter mit korrosionsbeständiger Auskleidung aufbewahren.

P407

Luftspalt zwischen Stapeln/Paletten lassen.

P410

Vor Sonnenbestrahlung schützen.

P411

Bei Temperaturen von nicht mehr als ... °C/... °F aufbewahren.

P411a

Bei Temperaturen von nicht mehr als ... °C aufbewahren.

P411b

Bei Temperaturen von nicht mehr als... °F aufbewahren.

P412

Nicht Temperaturen von mehr als 50 °C aussetzen.

P413

Schüttgut in Mengen von mehr als ... kg/ ...lbs bei Temperaturen von nicht mehr als ... °C/ ...°F aufbewahren

P413a

Schüttgut in Mengen von mehr als ... kg bei Temperaturen von nicht mehr als ... °C aufbewahren.

P413b

Schüttgut in Mengen von mehr als ...lbs bei Temperaturen von nicht mehr als ...°F aufbewahren.

P420

Von anderen Materialien entfernt aufbewahren.

P420a

Von Lebensmitteln getrennt lagern.

P420b

Von brennbaren Stoffen getrennt lagern.

P420c

Von Oxidationsmitteln getrennt lagern.

P420d

Von Reduktionsmitteln getrennt lagern.

P420e

Von Wasser getrennt lagern.

P420f

Von Metallen getrennt lagern.

P420g

Von Säuren getrennt lagern.

P420h

Von Laugen getrennt lagern.

P422

Inhalt in/unter ... aufbewahren

P422a

Inhalte unter Inertgas aufbewahren.

P422b

Inhalte unter Schutzgas aufbewahren.

P422c

Inhalte unter Lösemittel aufbewahren.

P422d

Unter Wasser aufbewahren.

P422e

Unter Petroleum aufbewahren.

P422f

Unter Stickstoff aufbewahren.

P402 + P404

In einem geschlossenen Behälter an einem trockenen Ort aufbewahren.

P403+P233

Behälter dicht verschlossen an einem gut belüfteten Ort aufbewahren.

P403+P235

Kühl an einem gut belüfteten Ort aufbewahren.

P410+P403

Vor Sonnenbestrahlung geschützt an einem gut belüfteten Ort aufbewahren.

P410+P412

Vor Sonnenbestrahlung schützen und nicht Temperaturen von mehr als 50 °C aussetzen.

P411+P235

Kühl und bei Temperaturen von nicht mehr als ...°C/ ...°F aufbewahren.

P411a+P235

Kühl und bei Temperaturen von nicht mehr als ...°C aufbewahren.

P411b+P235

Kühl und bei Temperaturen von nicht mehr als ...°F aufbewahren.

P501

Inhalt/Behälter ... zuführen.

P501a

Entsorgung des Inhalts / des Behälters gemäß den örtlichen / regionalen / nationalen/ internationalen Vorschriften.

P502

Informationen zur Wiederverwendung/Wiederverwertung beim Hersteller/Lieferanten erfragen

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Danger		GHS01	H200, H201, H202, H203, H240, H241
Warning		GHS01	H204
Danger		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Warning		GHS02	H223, H226, H228, H229, H242, H252, H261
Warning	No Pictogram		H221, H229
Danger		GHS03	H270, H271, H272
Warning		GHS03	H272
Warning		GHS04	H280, H281
Danger		GHS06	H300, H310, H330, H301, H311, H331
Warning		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370, H372, H334, H304
Warning		GHS08	H341, H351, H361, H371, H373
Danger		GHS05	H314, H318
Warning		GHS05	H290
Warning		GHS07	H315, H319, H317, H335, H336, H420
Warning		GHS09	H400, H410
No Signal Word		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

H-Codes

Hazard statements for physical hazards

H200
Unstable explosives.

H201
Explosive; mass explosion hazard.

H202
Explosive, severe projection hazard.

H203
Explosive; fire, blast or projection hazard.

H204
Fire or projection hazard.

H205
May mass explode in fire.

H220
Extremely flammable gas.

H221
Flammable gas.

H222
Extremely flammable aerosol.

H223
Flammable aerosol.

H224
Extremely flammable liquid and vapour.

H225
Highly flammable liquid and vapour.

H226
Flammable liquid and vapour.

H227
Combustible liquid.

H228
Flammable solid.

H229
Pressurised container: May burst if heated.

H230
May react explosively even in the absence of air.

H231
May react explosively even in the absence of air at elevated pressure and / or temperature.

H240
Heating may cause an explosion.

H241
Heating may cause a fire or explosion.

H242
Heating may cause a fire.

H250
Catches fire spontaneously if exposed to air.

H251
Self-heating: may catch fire.

H252
Self-heating in large quantities; may catch fire.

H260
In contact with water releases flammable gases which may ignite spontaneously.

H261
In contact with water releases flammable gases.

H270
May cause or intensify fire; oxidiser.

H271
May cause fire or explosion; strong oxidiser.

H272
May intensify fire; oxidiser.

H280
Contains gas under pressure; may explode if heated.

H281
Contains refrigerated gas; may cause cryogenic burns or injury.

H290
May be corrosive to metals.

Hazard statements for health hazards

H300
Fatal if swallowed.

H301
Toxic if swallowed.

H302
Harmful if swallowed.

H303
May be harmful if swallowed.

H304
May be fatal if swallowed and enters airways.

H305
May be harmful if swallowed and enters airways.

H310
Fatal in contact with skin.

H311
Toxic in contact with skin.

H312
Harmful in contact with skin.

H313
May be harmful in contact with skin.

H314
Causes severe skin burns and eye damage.

H315
Causes skin irritation.

H316
Causes mild skin irritation.

H317
May cause an allergic skin reaction.

H318
Causes serious eye damage.

H319
Causes serious eye irritation.

H320
Causes eye irritation.

H330
Fatal if inhaled.

H331
Toxic if inhaled.

H332
Harmful if inhaled.

H333
May be harmful if inhaled.

H334
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335
May cause respiratory irritation.

H336
May cause drowsiness or dizziness.

H340
May cause genetic defects.

H341
Suspected of causing genetic defects.

H350
May cause cancer.

H350i
May cause cancer by inhalation.

H351
Suspected of causing cancer.

H351i
Suspected of causing cancer by inhalation.

H360
May damage fertility or the unborn child.

H360D
May damage the unborn child.

H360Df
May damage the unborn child. Suspected of damaging fertility.

H360F
May damage fertility.

H360FD
May damage fertility. May damage the unborn child.

H360Fd
May damage fertility. Suspected of damaging the unborn child.

H361
Suspected of damaging fertility or the unborn child.

H361d
Suspected of damaging the unborn child.

H361f
Suspected of damaging fertility.

H361fd
Suspected of damaging fertility. Suspected of damaging the unborn child.

H362
May cause harm to breast-fed children.

H370
Causes damage to organs.

H371
May cause damage to organs.

H372
Causes damage to organs.

H373
May cause damage to organs through prolonged or repeated exposure.

H300+H310

Fatal if swallowed or in contact with skin.

H300+H310+H330

Fatal if swallowed, in contact with skin or if inhaled.

H300+H330

Fatal if swallowed or if inhaled.

H301+H311

Toxic if swallowed or in contact with skin.

H301+H311+H331

Toxic if swallowed, in contact with skin or if inhaled.

H301+H331

Toxic if swallowed or if inhaled.

H302+H312

Harmful if swallowed or in contact with skin.

H302+H312+H332

Harmful if swallowed, in contact with skin or if inhaled.

H302+H332

Harmful if swallowed or if inhaled.

H303+H313

May be harmful if swallowed or in contact with skin.

H303+H313+H333

May be harmful if swallowed, in contact with skin or if inhaled.

H303+H333

May be harmful if swallowed or if inhaled.

H310+H330

Fatal in contact with skin or if inhaled.

H311+H331

Toxic in contact with skin or if inhaled.

H312+H332

Harmful in contact with skin or if inhaled.

H313+H333

May be harmful in contact with skin or if inhaled.

H315+H320

Causes skin and eye irritation.

Hazard statements for environmental hazards

H400

Very toxic to aquatic life.

H401

Toxic to aquatic life.

H402

Harmful to aquatic life.

H410

Very toxic to aquatic life with long lasting effects.

H411

Toxic to aquatic life with long lasting effects.

H412

Harmful to aquatic life with long lasting effects.

H413

May cause long lasting harmful effects to aquatic life.

H420

Harms public health and the environment by destroying ozone in the upper atmosphere

EUH-Codes

Supplemental hazard informations

EUH 001

Explosive when dry.

EUH 006

Explosive with or without contact with air.

EUH 014

Reacts violently with water.

EUH 018

In use may form flammable/explosive vapour-air mixture.

EUH 019

May form explosive peroxides.

EUH029

Contact with water liberates toxic gas.

EUH031

Contact with acids liberates toxic gas.

EUH032

Contact with acids liberates very toxic gas.

EUH 044

Risk of explosion if heated under confinement.

EUH 059

Hazardous to the ozone layer.

EUH 066

Repeated exposure may cause skin dryness or cracking.

EUH 070

Toxic by eye contact.

EUH 071

Corrosive to the respiratory tract.

P-Codes

P101

If medical advice is needed, have product container or label at hand.

P102

Keep out of reach of children.

P103

Read label before use.

P201

Obtain special instructions before use.

P202

Do not handle until all safety precautions have been read and understood.

P210

Keep away from heat/sparks/open flames/hot surfaces. ...

No smoking.

P210a

Keep away from heat. - No smoking.

P210b

Keep away from sparks. - No smoking.

P210c

Keep away from open flames. - No smoking.

P210d

Keep away from hot surfaces. - No smoking.

P211

Do not spray on an open flame or other ignition source.

P220

Keep/Store away from clothing/.../combustible materials.

P220a

Keep away from clothing.

P220b

Keep away from combustible materials.

P220c

Keep away from reducing agents, heavy metal compounds, acids and alkalis.

P220d

Keep away from oxidising and acidic substances, as well as heavy metal compounds.

P220e

Keep away from iron.

P220f

Keep away from water.

P220g

Keep away from acids.

P220h

Keep away from alkaline solutions.

P220i

Keep away from metals.

P220j

Keep away from oxidising agents and acidic substances.

P220k

Keep away from flammable organic substances.

P220l

Keep away from acids, reducing agents and flammable materials.

P221

Take any precaution to avoid mixing with combustibles...

P222

Do not allow contact with air.

P223

Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P230

Keep wetted with...

P230a

Keep wetted.

P231

Handle under inert gas.

P232

Protect from moisture.

P233

Keep container tightly closed.

P234

Keep only in original container.

P235

Keep cool.

P240

Ground/bond container and receiving equipment.

P241

Use explosion-proof electrical/ventilating/lighting/.../equipment.

P242

Use only non-sparking tools.

P243

Take precautionary measures against static discharge.

P244

Keep reduction valves free from grease and oil.

P250

Do not subject to grinding/shock/.../friction.

P251

Pressurized container: Do not pierce or burn, even after use.

P260

Do not breathe dust/fume/gas/mist/vapours/spray.

P260a

Do not breathe dust.

P260b

Do not breathe fume.

P260c

Do not breathe gas.

P260d

Do not breathe mist.

P260e

Do not breathe vapours.

P260f

Do not breathe spray.

P260g

Do not breathe mist/vapours/spray.

P261

Avoid breathing dust/fume/gas/mist/vapours/spray.

P261a

Avoid breathing dust.

P261b

Avoid breathing fume.

P261c

Avoid breathing gas.

P261d

Avoid breathing mist.

P261e

Avoid breathing vapours.

P261f

Avoid breathing spray.

P261g

Avoid breathing mist/vapours/spray.

P262

Do not get in eyes, on skin, or on clothing.

P263

Avoid contact during pregnancy/while nursing.

P264

Wash ... thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P271

Use only outdoors or in a well-ventilated area.

P272

Contaminated work clothing should not be allowed out of the workplace.

P273

Avoid release to the environment.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P280a

Wear protective gloves / eye protection / face protection.

P280b

Wear protective gloves / eye protection.

P280c

Wear protective gloves / face protection.

P280d

Wear protective clothing / eye protection.

P280e

Wear protective clothing / face protection.

P280f

Wear protective clothing.

P280g

Wear protective gloves.

P280h

Wear protective gloves / protective clothing.

P280i

Wear protective gloves / protective clothing.

P280j

Wear face protection.

P282

Wear cold insulating gloves/face shield/eye protection.

P283

Wear fire/flammable resistant/retardant clothing.

P284

Wear respiratory protection.

P301

IF SWALLOWED:

P302

IF ON SKIN:

P303

IF ON SKIN (or hair):

P304

IF INHALED:

P305

IF IN EYES:

P306

IF ON CLOTHING:

P308

IF exposed or concerned:

P310

Immediately call a POISON CENTER or doctor/physician.

P311

Call a POISON CENTER or doctor/physician.

P312

Call a POISON CENTER or doctor/physician if you feel unwell.

P313

Get medical advice/attention.

P314

Get medical advice/attention if you feel unwell.

P315

Get immediate medical advice/attention.

P320

Specific treatment is urgent (see ... on this label).

P321

Specific treatment (see ... on this label).

P330

Rinse mouth.

P331

Do NOT induce vomiting.

P332

If skin irritation occurs:

P333

If skin irritation or rash occurs:

P334

Immerse in cool water/wrap in wet bandages.

P335

Brush off loose particles from skin.

P336

Thaw frosted parts with lukewarm water. Do no rub affected area.

P337

If eye irritation persists:

P338

Remove contact lenses, if present and easy to do. Continue rinsing.

P340

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P342

If experiencing respiratory symptoms:

P351

Rinse cautiously with water for several minutes.

P352

Wash with plenty of soap and water.

P353

Rinse skin with water/shower.

P360

Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P361

Remove/Take off immediately all contaminated clothing.

P362

Take off contaminated clothing and wash before reuse.

P363

Wash contaminated clothing before reuse.

P364

And wash it before reuse.

P370

In case of fire:

P371

In case of major fire and large quantities:

P372

Explosion risk in case of fire.

P373

DO NOT fight fire when fire reaches explosives.

P374

Fight fire with normal precautions from a reasonable distance

P375

Fight fire remotely due to the risk of explosion.

P376

Stop leak if safe to do so.

P377

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P378

Use ... for extinction.

P378a

Use for extinction: CO₂, powder or water spray.

P378b

Use for extinction: Special powder for metal fires.

P378c

Use for extinction: CO₂, sand, extinguishing powder.

P378d

Use for extinction: Water.

P378e

Use for extinction: Water haze.

P378f

Use for extinction: Water spray.

P378g

Use for extinction: Foam.

P378h

Use for extinction: Alcohol resistant foam.

P378i

Use for extinction: Fire-extinguishing powder.

P378j

Use for extinction: BC powder.

P378k

Use for extinction: ABC powder.

P378l

Use for extinction: Carbon dioxide.

P378m

Use for extinction: Limestone powder.

P378n

Use for extinction: Cement.

P378o

Use for extinction: Sand.

P378p

Use for extinction: Dry sand.

P380

Evacuate area.

P381

Eliminate all ignition sources if safe to do so.

P390

Absorb spillage to prevent material damage.

P391

Collect spillage.

P231+P232

Handle under inert gas. Protect from moisture.

P235+P410

Keep cool. Protect from sunlight.

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P301 + P312

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P301 + P330 + P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P302 + P334

IF ON SKIN: Immerse in cool water/wrap in wet bandages.

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P303 + P361 + P353

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P312

IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P306 + P360

IF ON CLOTHING: rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

P307 + P311

IF exposed: Call a POISON CENTER or doctor/physician.

P308 + P313

IF exposed or concerned: Get medical advice/attention.

P332 + P313

If skin irritation occurs: Get medical advice/attention.

P333 + P313

If skin irritation or rash occurs: Get medical advice/attention.

P335 + P334

Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P337 + P313

If eye irritation persists: Get medical advice/attention.

P342 + P311

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P361+P364

Take off immediately all contaminated clothing and wash it before reuse.

P362+P364

Take off contaminated clothing and wash it before reuse.

P370 + P376

In case of fire: Stop leak if safe to do so.

P370 + P378

In case of fire: Use ... for extinction.

P370+P378a

In case of fire: Use for extinction: CO₂, powder or water spray.

P370+P378b

In case of fire: Use for extinction: Special powder for metal fires.

P370+P378c

In case of fire: Use for extinction: CO₂, sand, extinguishing powder.

P370+P378d

In case of fire: Use for extinction: Water.

P370+P378e

In case of fire: Use for extinction: Water haze.

P370+P378f

In case of fire: Use for extinction: Water spray.

P370+P378g

In case of fire: Use for extinction: Foam.

P370+P378h

In case of fire: Use for extinction: Alcohol resistant foam.

P370+P378i

In case of fire: Use for extinction: Fire-extinguishing powder.

P370+P378j

In case of fire: Use for extinction: BC powder.

P370+P378k

In case of fire: Use for extinction: ABC powder.

P370+P378l

In case of fire: Use for extinction: Carbon dioxide.

P370+P378m

In case of fire: Use for extinction: Limestone powder.

P370+P378n

In case of fire: Use for extinction: Cement.

P370+P378o

In case of fire: Use for extinction: Sand.

P370+P378p

In case of fire: Use for extinction: Dry sand.

P370 + P380

In case of fire: Evacuate area.

P370 + P380 + P375

In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

P371 + P380 + P375

In case of major fire and large quantities: Evacuate area.

Fight fire remotely due to the risk of explosion.

P401

Store ...

P401a

Store in accordance with local/regional/national/international regulations.

P402

Store in a dry place.

P403

Store in a well-ventilated place.

P404

Store in a closed container.

P405

Store locked up.

P406

Store in corrosive resistant/... container with a resistant inner liner.

P407

Maintain air gap between stacks/pallets.

P410

Protect from sunlight.

P411

Store at temperatures not exceeding ... °C/...°F.

P411a

Store at temperatures not exceeding... °C.

P411b

Store at temperatures not exceeding...°F.

P412

Do not expose to temperatures exceeding 50 °C/122 °F.

P413

Store bulk masses greater than ... kg/... lbs at temperatures not exceeding ... °C/...°F.

P413a

Store bulk masses greater than ...kg at temperatures not exceeding ...°C.

P413b

Store bulk masses greater than ...lbs at temperatures not exceeding ...°F.

P420

Store away from other materials.

P420a

Store away from foodstuffs.

P420b

Store away from flammable substances.

P420c

Store away from oxidizing agents.

P420d

Store away from reducing agents.

P420e

Store away from water.

P420f

Store away from metals.

P420g

Store away from acids.

P420h

Store away from caustic solutions.

P422

Store contents under ...

P422a

Store contents under inert gas.

P422b

Store contents under protective gas.

P422c

Store contents under solvent.

P422d

Store under water.

P422e

Store in petroleum.

P422f

Store in nitrogen.

P402 + P404

Store in a dry place. Store in a closed container.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P403 + P235

Store in a well-ventilated place. Keep cool.

P410 + P403

Protect from sunlight. Store in a well-ventilated place.

P410 + P412

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

P411 + P235

Store at temperatures not exceeding ... °C/... °F. Keep cool.

P411a+P235

Store at temperatures not exceeding ...°C. Keep cool.

P411b+P235

Store at temperatures not exceeding ...°F. Keep cool.

P501

Dispose of contents/container to ...

P501a

Dispose of contents/container in accordance with local/regional/national/international regulations.

P502

Refer to manufacturer/supplier for information on recovery/recycling.

Système général harmonisé de classification et d'étiquetage des produits chimiques. (SGH)

Danger		GHS01	H200, H201, H202, H203 H240 H241
Attention		GHS01	H204
Danger		GHS02	H220, H222, H224 H225, H228, H229 H241, H242 H250, H251, H260, H261
Attention		GHS02	H223, H226, H228, H229 H242, H252, H261
Attention	Pas de Pictogramme		H221, H229
Danger		GHS03	H270, H271, H272
Attention		GHS03	H272
Attention		GHS04	H280, H281
Danger		GHS06	H300, H310, H330 H301, H311, H331
Attention		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370 H372, H334, H304
Attention		GHS08	H341, H351, H361, H371 H373
Danger		GHS05	H314, H318
Attention		GHS05	H290
Attention		GHS07	H315, H319, H317, H335, H336, H420
Attention		GHS09	H400, H410
Pas de mention d'avertissement		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

H - Codes

Des Mentions de danger des dangers physiques

H200
Explosif instable.

H201
Explosif; danger d'explosion en masse.

H202
Explosif; danger sérieux de projection.

H203
Explosif; danger d'incendie, d'effet de souffle ou de projection.

H204
Danger d'incendie ou de projection.

H205
Danger d'explosion en masse en cas d'incendie.

H220
Gaz extrêmement inflammable.

H221
Gaz inflammable.

H222
Aérosol extrêmement inflammable.

H223
Aérosol inflammable.

H224
Liquide et vapeurs extrêmement inflammables.

H225
Liquide et vapeurs très inflammables.

H226
Liquide et vapeurs inflammables.

H227
Liquide combustible.

H228
Matière solide inflammable.

H229
Récipient sous pression: peut éclater sous l'effet de la chaleur.

H230
Peut exploser même en l'absence d'air.

H231
Peut exploser même en l'absence d'air à une pression et/ou température élevée(s).

H240
Peut exploser sous l'effet de la chaleur.

H241
Peut s'enflammer ou exploser sous l'effet de la chaleur.

H242
Peut s'enflammer sous l'effet de la chaleur.

H250
S'enflamme spontanément au contact de l'air.

H251
Matière auto-échauffante; peut s'enflammer.

H252
Matière auto-échauffante en grandes quantités; peut s'enflammer.

H260
Dégage au contact de l'eau des gaz inflammables qui peuvent s'enflammer spontanément.

H261
Dégage au contact de l'eau des gaz inflammables.

H270
Peut provoquer ou aggraver un incendie; comburant.

H271
Peut provoquer un incendie ou une explosion; comburant puissant.

H272
Peut aggraver un incendie; comburant.

H280
Contient un gaz sous pression; peut exploser sous l'effet de la chaleur.

H281
Contient un gaz réfrigéré; peut causer des brûlures ou blessures cryogéniques.

H290
Peut être corrosif pour les métaux.

Des Mentions de danger des dangers pour la santé

H300
Mortel en cas d'ingestion.

H301
Toxique en cas d'ingestion.

H302
Nocif en cas d'ingestion.

H303
Peut être nocif en cas d'ingestion.

H304
Peut être mortel en cas d'ingestion et de pénétration dans les voies respiratoires.

H305
Peut être nocif en cas d'ingestion et de pénétration dans les voies respiratoires.

H310
Mortel par contact cutané.

H311
Toxique par contact cutané.

H312
Nocif par contact cutané.

H313
Peut être nocif par contact cutané.

H314
Provoque des brûlures de la peau et des lésions oculaires graves.

H315
Provoque une irritation cutanée.

H300+H310
Mortel par ingestion ou par contact cutané.

H300+H310+H330
Mortel par ingestion, par contact cutané ou par inhalation.

H300+H330
Mortel par ingestion ou par inhalation.

H301+H311
Toxique par ingestion ou par contact cutané.

H301+H311+H331
Toxique par ingestion, par contact cutané ou par inhalation.

H301+H331
Toxique par ingestion ou par inhalation.

H302+H312
Nocif en cas d'ingestion ou de contact cutané.

H302+H312+H332
Nocif en cas d'ingestion, de contact cutané ou d'inhalation.

H302+H332
Nocif en cas d'ingestion ou d'inhalation.

H303+H313
Peut être nocif en cas d'ingestion ou de contact cutané.

H303+H313+H333
Peut être nocif en cas d'ingestion, de contact cutané ou d'inhalation.

H303+H333
Peut être nocif en cas d'ingestion ou d'inhalation.

H310+H330
Mortel par contact cutané ou par inhalation.

H311+H331
Toxique par contact cutané ou par inhalation.

H312+H332
Nocif en cas de contact cutané ou d'inhalation.

H313+H333
Peut être nocif en cas de contact cutané ou d'inhalation.

H315+H320
Cause une irritation cutanée et oculaire.

H316
Provoque une légère irritation cutanée.

H317
Peut provoquer une allergie cutanée.

H318
Provoque des lésions oculaires graves.

H319
Provoque une sévère irritation des yeux.

H320
Provoque une irritation oculaire.

H330
Mortel par inhalation.

H331
Toxique par inhalation.

H332
Nocif par inhalation.

H333
Peut être nocif par inhalation.

H334
Peut provoquer des symptômes allergiques ou d'asthme ou des difficultés respiratoires par inhalation.

H335
Peut irriter les voies respiratoires.

H336
Peut provoquer somnolence ou vertiges.

H340
Peut induire des anomalies génétiques.

H341
Susceptible d'induire des anomalies génétiques.

H350
Peut provoquer le cancer.

H350i
Peut provoquer le cancer par inhalation.

H351
Susceptible de provoquer le cancer.

H351i
Susceptible de provoquer le cancer par inhalation.

H360
Peut nuire à la fertilité ou au fœtus.

H360D
Peut nuire au fœtus.

H360Df
Peut nuire au fœtus. Susceptible de nuire à la fertilité.

H360F
Peut nuire à la fertilité.

H360FD
Peut nuire à la fertilité. Peut nuire au fœtus.

H360Fd
Peut nuire à la fertilité. Susceptible de nuire au fœtus.

H361
Susceptible de nuire à la fertilité ou au fœtus.

H361d
Susceptible de nuire au fœtus.

H361f
Susceptible de nuire à la fertilité.

H361fd
Susceptible de nuire à la fertilité. Susceptible de nuire au fœtus.

H362
Peut être nocif pour les bébés nourris au lait maternel.

H370
Risque avéré d'effets graves pour les organes.

H371
Risque présumé d'effets graves pour les organes.

H372
Risque avéré d'effets graves pour les organes à la suite d'expositions répétées ou d'une exposition prolongée.

H373
Risque présumé d'effets graves pour les organes à la suite d'expositions répétées ou d'une exposition prolongée.

Des Mentions de danger des dangers pour l'environnement

H400
Très toxique pour les organismes aquatiques.

H401
Toxique pour les organismes aquatiques.

H402
Nocif pour les organismes aquatiques.

H410
Très toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.

H411
Toxique pour les organismes aquatiques, entraîne des effets néfastes à long terme.

H412
Nocif pour les organismes aquatiques, entraîne des effets néfastes à long terme.

H413
Peut être nocif à long terme pour les organismes aquatiques.

H420
Nuit à la santé publique et à l'environnement en détruisant l'ozone dans la haute atmosphère

EUH - Codes

Des informations de dangers supplémentaires

EUH001
Explosif à l'état sec.

EUH006
Danger d'explosion en contact ou sans contact avec l'air.

EUH014
Réagit violemment au contact de l'eau.

EUH018
Lors de l'utilisation, formation possible de mélange vapeur-air inflammable/explosif.

EUH019
Peut former des peroxydes explosifs.

EUH029
Au contact de l'eau, dégage des gaz toxiques.

EUH031
Au contact d'un acide, dégage un gaz toxique.

EUH032
Au contact d'un acide, dégage un gaz très toxique.

EUH044
Risque d'explosion si chauffé en ambiance confinée.

EUH059
Dangereux pour la couche d'ozone.

EUH066
L'exposition répétée peut provoquer dessèchement ou gerçures de la peau.

EUH070
Toxique par contact oculaire.

EUH071
Corrosif pour les voies respiratoires.

P - Codes

P101
En cas de consultation d'un médecin, garder à disposition le récipient ou l'étiquette.

P102
Tenir hors de portée des enfants.

P103
Lire l'étiquette avant utilisation.

P201
Se procurer les instructions avant utilisation.

P202
Ne pas manipuler avant d'avoir lu et compris toutes les précautions de sécurité.

P210
Tenir à l'écart de la chaleur/des étincelles/des flammes nues/des surfaces chaudes. - Ne pas fumer.

P210a
Tenir à l'écart de la chaleur. - Ne pas fumer.

P210b
Tenir à l'écart des étincelles. - Ne pas fumer.

P210c
Tenir à l'écart des flammes nues. - Ne pas fumer.

P210d
Tenir à l'écart des surfaces chaudes. - Ne pas fumer.

P211
Ne pas vaporiser sur une flamme nue ou sur toute autre source d'ignition.

P220
Tenir/stocker à l'écart des vêtements/matières combustibles.

P220a
Tenir à l'écart des vêtements.

P220b
Tenir à l'écart des matières combustibles.

P220c
Tenir à l'écart des agents de réduction, des composés de métaux lourds, des acides et des alcalis.

P220d
Tenir à l'écart des matières oxydantes et acides ainsi que des composés de métaux lourds.

P220e
Tenir à l'écart du fer.

P220f
Tenir à l'écart de l'eau.

P220g
Tenir à l'écart des acides.

P220h
Tenir à l'écart des lessives alcalines.

P220i
Tenir à l'écart des métaux.

P220j
Tenir à l'écart des matières oxydantes et acides.

P220k
Tenir à l'écart des substances organiques inflammables.

P220l
Tenir à l'écart des acides, agents de réduction et matières inflammables.

P221
Prendre toutes précautions pour éviter de mélanger avec des matières combustibles.

P222
Ne pas laisser au contact de l'air.

P223
Éviter tout contact avec l'eau, à cause du risque de réaction violente et d'inflammation spontanée.

P230
Maintenir humidifié avec...

P230a
Maintenir humidifié.

P231
Manipuler sous gaz inerte.

P232
Protéger de l'humidité.

P233
Maintenir le récipient fermé de manière étanche.

P234
Conservé uniquement dans le récipient d'origine.

P235
Tenir au frais.

P240
Mise à la terre/liaison équipotentielle du récipient et du matériel de réception.

P241
Utiliser du matériel électrique/de ventilation/d'éclairage/antidéflagrant.

P242
Ne pas utiliser d'outils produisant des étincelles.

P243
Prendre des mesures de précaution contre les décharges électrostatiques.

P244
S'assurer de l'absence de graisse ou d'huile sur les soupapes de réduction.

P250
Éviter les abrasions/les chocs/les frottements.

P251
Récipient sous pression: ne pas perforer, ni brûler, même après usage.

P260
Ne pas respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

P260a
Ne pas respirer les poussières.

P260b
Ne pas respirer les fumées.

P260c
Ne pas respirer les gaz.

P260d
Ne pas respirer les brouillards.

P260e
Ne pas respirer les vapeurs.

P260f
Ne pas respirer les aérosols.

P260g
Ne pas respirer les brouillards/vapeurs/aérosols.

P261
Éviter de respirer les poussières/fumées/gaz/brouillards/vapeurs/aérosols.

P261a
Éviter de respirer les poussières.

P261b
Éviter de respirer les fumées.

P261c
Éviter de respirer les gaz.

P261d
Éviter de respirer les brouillards.

P261e
Éviter de respirer les vapeurs.

P261f
Éviter de respirer les aérosols.

P261g
Éviter de respirer les brouillards/vapeurs/aérosols.

P262
Éviter tout contact avec les yeux, la peau ou les vêtements.

P263
Éviter tout contact avec la substance au cours de la grossesse/pendant l'allaitement.

P264
Se laver soigneusement après manipulation.

P270
Ne pas manger, boire ou fumer en manipulant ce produit.

P271
Utiliser seulement en plein air ou dans un endroit bien ventilé.

P272
Les vêtements de travail contaminés ne devraient pas sortir du lieu de travail.

P273
Éviter le rejet dans l'environnement.

P280
Porter des gants de protection/des vêtements de protection/ un équipement de protection des yeux/du visage.

P280a
Porter des gants de protection / un équipement de protection des yeux / un équipement de protection du visage.

P280b
Porter des gants de protection / un équipement de protection des yeux.

P280c
Porter des gants de protection / un équipement de protection du visage.

P280d
Porter des vêtements de protection / un équipement de protection des yeux.

P280e
Porter des vêtements de protection / un équipement de protection du visage.

P280f
Porter des vêtements de protection.

P280g
Porter des gants de protection.

P280h
Porter des gants de protection / des vêtements de protection.

P280i
Porter un équipement de protection des yeux / un équipement de protection du visage.

P280j
Porter un équipement de protection du visage.

P282
Porter des gants isolants contre le froid/un équipement de protection du visage/des yeux.

P283
Porter des vêtements résistant au feu/aux flammes/ignifuges.

P284
Porter un équipement de protection respiratoire.

P301
EN CAS D'INGESTION:

P302
EN CAS DE CONTACT AVEC LA PEAU:

P303
EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux):

P304
EN CAS D'INHALATION:

P305
EN CAS DE CONTACT AVEC LES YEUX:

P306
EN CAS DE CONTACT AVEC LES VÊTEMENTS:

P308
EN CAS d'exposition prouvée ou suspectée:

P310
Appeler immédiatement un CENTRE ANTIPOISON ou un médecin.

P311
Appeler un CENTRE ANTIPOISON ou un médecin.

P312
Appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

P313
Consulter un médecin.

P314
Consulter un médecin en cas de malaise.

P315
Consulter immédiatement un médecin.

P320
Un traitement spécifique est urgent (voir sur cette étiquette).

P321
Traitement spécifique (voir sur cette étiquette).

P330
Rincer la bouche.

P331
NE PAS faire vomir.

P332
En cas d'irritation cutanée:

P333
En cas d'irritation ou d'éruption cutanée:

P334
Rincer à l'eau fraîche/poser une compresse humide.

P335
Enlever avec précaution les particules déposées sur la peau.

P336
Dégeler les parties gelées avec de l'eau tiède. Ne pas frotter les zones touchées.

P337
Si l'irritation oculaire persiste:

P338
Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P340
Transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer.

P342
En cas de symptômes respiratoires:

P351
Rincer avec précaution à l'eau pendant plusieurs minutes.

P352
Laver abondamment à l'eau et au savon.

P353
Rincer la peau à l'eau/se doucher.

P360
Rincer immédiatement et abondamment avec de l'eau les vêtements contaminés et la peau avant de les enlever.

P361
Enlever immédiatement les vêtements contaminés.

P362
Enlever les vêtements contaminés et les laver avant réutilisation.

P363
Laver les vêtements contaminés avant réutilisation.

P364
Et les laver avant réutilisation.

P370
En cas d'incendie:

P371
En cas d'incendie important et s'il s'agit de grandes quantités:

P372
Risque d'explosion en cas d'incendie.

P373
NE PAS combattre l'incendie lorsque le feu atteint les explosifs.

P374
Combattre l'incendie à distance en prenant les précautions normales.

P375
Combattre l'incendie à distance à cause du risque d'explosion.

P376
Obturer la fuite si cela peut se faire sans danger.

P377
Fuite de gaz enflammé: Ne pas éteindre si la fuite ne peut pas être arrêtée sans danger.

P378
Utiliser ... pour l'extinction.

P378a
Utiliser pour l'extinction: CO₂, poudre d'extinction ou eau pulvérisée.

P378b
Utiliser pour l'extinction: Poudre spéciale pour incendies de métaux.

P378c
Utiliser pour l'extinction: CO₂, sable, poudre d'extinction.

P378d
Utiliser pour l'extinction: Eau.

P378e
Utiliser pour l'extinction: Brouillard d'eau.

P378f
Utiliser pour l'extinction: Eau pulvérisée.

P378g
Utiliser pour l'extinction: Mousse.

P378h
Utiliser pour l'extinction: Mousse résistant à l'alcool.

P378i
Utiliser pour l'extinction: Poudre d'extinction.

P378j
Utiliser pour l'extinction: Poudre BC.

P378k
Utiliser pour l'extinction: Poudre ABC.

P378l
Utiliser pour l'extinction: Dioxyde de carbone.

P378m
Utiliser pour l'extinction: Poudre de roche calcaire.

P378n
Utiliser pour l'extinction: Ciment.

P378o
Utiliser pour l'extinction: Sable.

P378p
Utiliser pour l'extinction: Sable sec.

P380
Évacuer la zone.

P381
Éliminer toutes les sources d'ignition si cela est faisable sans danger.

P390
Absorber toute substance répandue pour éviter qu'elle attaque les matériaux environnants.

P391
Recueillir le produit répandu.

P301+P310
EN CAS D'INGESTION: appeler immédiatement un CENTRE ANTIPOISON ou un médecin.

P301+P312
EN CAS D'INGESTION: appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

P301+P330+P331
EN CAS D'INGESTION: rincer la bouche. NE PAS faire vomir.

P302+P334
EN CAS DE CONTACT AVEC LA PEAU: rincer à l'eau fraîche/poser une compresse humide.

P302+P352
EN CAS DE CONTACT AVEC LA PEAU: laver abondamment à l'eau et au savon.

P303+P361+P353
EN CAS DE CONTACT AVEC LA PEAU (ou les cheveux): enlever immédiatement les vêtements contaminés. Rincer la peau à l'eau/se doucher.

P304+P312
EN CAS D'INHALATION: Appeler un CENTRE ANTIPOISON ou un médecin en cas de malaise.

P304+P340
EN CAS D'INHALATION: transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer.

P305+P351+P338
EN CAS DE CONTACT AVEC LES YEUX: rincer avec précaution à l'eau pendant plusieurs minutes. Enlever les lentilles de contact si la victime en porte et si elles peuvent être facilement enlevées. Continuer à rincer.

P306+P360
EN CAS DE CONTACT AVEC LES VÊTEMENTS: rincer immédiatement et abondamment avec de l'eau les vêtements contaminés et la peau avant de les enlever.

P308+P311
En cas d'exposition prouvée ou suspectée: Appeler un CENTRE ANTIPOISON/un médecin.

P308+P313
EN CAS d'exposition prouvée ou suspectée: consulter un médecin.

P231+P232
Manipuler sous gaz inerte. Protéger de l'humidité.

P332+P313
En cas d'irritation cutanée: consulter un médecin.

P333+P313
En cas d'irritation ou d'éruption cutanée: consulter un médecin.

P335+P334
Enlever avec précaution les particules déposées sur la peau. Rincer à l'eau fraîche/poser une compresse humide.

P235+P410
Tenir au frais. Protéger du rayonnement solaire.

P337+P313
Si l'irritation oculaire persiste: consulter un médecin.

P342+P311
En cas de symptômes respiratoires: appeler un CENTRE ANTIPOISON ou un médecin.

P361+P364
Enlever immédiatement tous les vêtements contaminés et les laver avant réutilisation.

P362+P364
Enlever les vêtements contaminés et les laver avant réutilisation.

P370+P376
En cas d'incendie: obturer la fuite si cela peut se faire sans danger.

P370+P378
En cas d'incendie: utiliser ... pour l'extinction.

P370+P378a
En cas d'incendie: Utiliser pour l'extinction: CO₂, poudre d'extinction ou eau pulvérisée.

P370+P378b
En cas d'incendie: Utiliser pour l'extinction: Poudre spéciale pour incendies de métaux.

P370+P378c
En cas d'incendie: Utiliser pour l'extinction: CO₂, sable, poudre d'extinction.

P370+P378d
En cas d'incendie: Utiliser pour l'extinction: Eau.

P370+P378e
En cas d'incendie: Utiliser pour l'extinction: Brouillard d'eau.

P370+P378f
En cas d'incendie: Utiliser pour l'extinction: Eau pulvérisée.

P370+P378g
En cas d'incendie: Utiliser pour l'extinction: Mousse.

P370+P378h
En cas d'incendie: Utiliser pour l'extinction: Mousse résistant à l'alcool.

P370+P378i
En cas d'incendie: Utiliser pour l'extinction: Poudre d'extinction.

P370+P378j
En cas d'incendie: Utiliser pour l'extinction: Poudre BC.

P370+P378k
En cas d'incendie: Utiliser pour l'extinction: Poudre ABC.

P370+P378l
En cas d'incendie: Utiliser pour l'extinction: Dioxyde de carbone.

P370+P378m
En cas d'incendie: Utiliser pour l'extinction: Poudre de roche calcaire.

P370+P378n
En cas d'incendie: Utiliser pour l'extinction: Ciment.

P370+P378o
En cas d'incendie: Utiliser pour l'extinction: Sable.

P370+P378p
En cas d'incendie: Utiliser pour l'extinction: Sable sec.

P370+P380
En cas d'incendie: évacuer la zone.

P370+P380+P375
En cas d'incendie: évacuer la zone. Combattre l'incendie à distance à cause du risque d'explosion.

P371+P380+P375
En cas d'incendie important et s'il s'agit de grandes quantités: évacuer la zone. Combattre l'incendie à distance à cause du risque d'explosion.

P401
Stocker ...

P401a
Stocker conformément à la réglementation locale/régionale/nationale/internationale.

P402
Stocker dans un endroit sec.

P403
Stocker dans un endroit bien ventilé.

P404
Stocker dans un récipient fermé.

P405
Garder sous clef.

P406
Stocker dans un récipient résistant à la corrosion/récipient en avec doublure intérieure résistant à la corrosion.

P407
Maintenir un intervalle d'air entre les piles/palettes.

P410
Protéger du rayonnement solaire.

P411
Stocker à une température ne dépassant pas... °C/... °F.

P411a
Stocker à une température ne dépassant pas... °C.

P411b
Stocker à une température ne dépassant pas... °F.

P412
Ne pas exposer à une température supérieure à 50 °C/122 °F.

P413
Stocker les quantités en vrac de plus de ...kg/ ...lb à une température ne dépassant pas ...°C/... °F.

P413a
Stocker les quantités en vrac de plus de ...kg à une température ne dépassant pas... °C.

P413b
Stocker les quantités en vrac de plus de ...lb à une température ne dépassant pas ...°F.

P420
Stocker à l'écart des autres matières.

P420a
Stocker à l'écart des aliments.

P420b
Stocker à l'écart des matières inflammables.

P420c
Stocker à l'écart des agents d'oxydation.

P420d
Stocker à l'écart des agents de réduction.

P420e
Stocker à l'écart de l'eau.

P420f
Stocker à l'écart des métaux.

P420g
Stocker à l'écart des acides.

P420h
Stocker à l'écart des alcalis (lessives).

P422
Stocker le contenu sous ...

P422a
Stocker le contenu sous gaz inerte.

P422b
Stocker le contenu sous gaz protecteur.

P422c
Stocker le contenu sous solvant.

P422d
Conserver dans l'eau.

P422e
Conserver dans le pétrole.

P422f
Conserver dans l'azote.

P402+P404
Stocker dans un endroit sec. Stocker dans un récipient fermé.

P403+P233
Stocker dans un endroit bien ventilé. Maintenir le récipient fermé de manière étanche.

P403+P235
Stocker dans un endroit bien ventilé. Tenir au frais.

P410+P403
Protéger du rayonnement solaire. Stocker dans un endroit bien ventilé.

P410+P412
Protéger du rayonnement solaire. Ne pas exposer à une température supérieure à 50 °C/122 °F.

P411+P235
Stocker à une température ne dépassant pas ...°C/ ...°F. Tenir au frais.

P411a+P235
Stocker à une température ne dépassant pas... °C. Tenir au frais.

P411b+P235
Stocker à une température ne dépassant pas ...°F. Tenir au frais.

P501
Éliminer le contenu/récipient dans ...

P501a
Éliminer le contenu/récipient conformément à la réglementation locale/régionale/nationale/internationale.

P502
Se reporter au fabricant/fournisseur pour des informations concernant la récupération/le recyclage

Sistema mondiale armonizzato di classificazione ed etichettatura delle sostanze chimiche (GHS)

Pericolo		GHS01	H200, H201, H202, H203, H240, H241
Attenzione		GHS01	H204
Pericolo		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Attenzione		GHS02	H223, H226, H228, H229, H242, H252, H261
Attenzione	Nessun pittogramma		H221, H229
Pericolo		GHS03	H270, H271, H272
Attenzione		GHS03	H272
Attenzione		GHS04	H280, H281
Pericolo		GHS06	H300, H310, H330, H301, H311, H331
Attenzione		GHS07	H302, H312, H332
Danger		GHS08	H340, H350, H360, H370, H372, H334, H304
Attenzione		GHS08	H341, H351, H361, H371, H373
Pericolo		GHS05	H314, H318
Attenzione		GHS05	H290
Attenzione		GHS07	H315, H319, H317, H335, H336, H420
Attenzione		GHS09	H400, H410
Nessuna Avvertenza		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

H - Codici

Indicaciones de peligro periculo fisico

H200
Esplosivo instabile.

H201
Esplosivo; pericolo di esplosione di massa.

H202
Esplosivo; grave pericolo di proiezione.

H203
Esplosivo; pericolo di incendio, di spostamento d'aria o di proiezione.

H204
Pericolo di incendio o di proiezione.

H205
Pericolo di esplosione di massa in caso d'incendio.

H220
Gas altamente infiammabile.

H221
Gas infiammabile.

H222
Aerosol altamente infiammabile.

H223
Aerosol infiammabile.

H224
Liquido e vapori altamente infiammabili.

H225
Liquido e vapori facilmente infiammabili.

H226
Liquido e vapori infiammabili.

H227
Liquido combustibile.

H228
Solido infiammabile.

H229
Recipiente sotto pressione: può esplodere se riscaldato.

H230
Può reagire in modo esplosivo anche in assenza di aria.

H231
Può reagire in modo esplosivo anche in assenza di aria a pressione e/o temperatura elevate.

H240
Rischio di esplosione per riscaldamento.

H241
Rischio d'incendio o di esplosione per riscaldamento.

H242
Rischio d'incendio per riscaldamento.

H250
Spontaneamente infiammabile all'aria.

H251
Autoriscaldante; può infiammarsi.

H252
Autoriscaldante in grandi quantità; può infiammarsi.

H260
A contatto con l'acqua libera gas infiammabili che possono infiammarsi spontaneamente.

H261
A contatto con l'acqua libera gas infiammabili.

H270
Può provocare o aggravare un incendio; comburente.

H271
Può provocare un incendio o un'esplosione; molto comburente.

H272
Può aggravare un incendio; comburente.

H280
Contiene gas sotto pressione; può esplodere se riscaldato.

H281

Contiene gas refrigerato; può provocare ustioni o lesioni criogeniche.

H290

Può essere corrosivo per i metalli.

Indicaciones di pericolo per la salute**H300**

Letale se ingerito.

H301

Tossico se ingerito.

H302

Nocivo se ingerito.

H303

Può essere nocivo per ingestione.

H304

Può essere letale in caso di ingestione e di penetrazione nelle vie respiratorie.

H305

Può essere nocivo per ingestione e se raggiunge le vie respiratorie.

H310

Letale per contatto con la pelle.

H311

Tossico per contatto con la pelle.

H312

Nocivo per contatto con la pelle.

H313

Può essere nocivo a contatto con la pelle.

H314

Provoca gravi ustioni cutanee e gravi lesioni oculari.

H315

Provoca irritazione cutanea.

H316

Causa leggera irritazione cutanea.

H317

Può provocare una reazione allergica cutanea.

H318

Provoca gravi lesioni oculari.

H319

Provoca grave irritazione oculare.

H320

Causa irritazione agli occhi.

H330

Letale se inalato.

H331

Tossico se inalato.

H332

Nocivo se inalato.

H333

Può essere nocivo per inalazione.

H334

Può provocare sintomi allergici o asmatici o difficoltà respiratorie se inalato.

H335

Può irritare le vie respiratorie.

H336

Può provocare sonnolenza o vertigini.

H340

Può provocare alterazioni genetiche.

H341

Sospettato di provocare alterazioni genetiche.

H350

Può provocare il cancro.

H350i

Può provocare il cancro se inalato.

H351

Sospettato di provocare il cancro.

H351i

Sospettato di provocare il cancro per inalazione.

H360

Può nuocere alla fertilità o al feto.

H360D

Può nuocere al feto.

H360Df

Può nuocere al feto. Sospettato di nuocere alla fertilità.

H360F

Può nuocere alla fertilità.

H360FD

Può nuocere alla fertilità. Può nuocere al feto.

H360Fd

Può nuocere alla fertilità. Sospettato di nuocere al feto.

H361

Sospettato di nuocere alla fertilità o al feto.

H361d

Sospettato di nuocere al feto.

H361f

Sospettato di nuocere alla fertilità

H361fd

Sospettato di nuocere alla fertilità Sospettato di nuocere al feto.

H362

Può essere nocivo per i lattanti allattati al seno.

H370

Provoca danni agli organi.

H371

Può provocare danni agli organi.

H372

Provoca danni agli organi in caso di esposizione prolungata o ripetuta.

H373

Può provocare danni agli organi in caso di esposizione prolungata o ripetuta.

H300+H310

Mortale in caso di ingestione o a contatto con la pelle.

H300+H310+H330

Mortale se ingerito, a contatto con la pelle o se inalato.

H300+H330

Mortale se ingerito o inalato.

H301+H311

Tossico se ingerito o a contatto con la pelle.

H301+H311+H331

Tossico se ingerito, a contatto con la pelle o se inalato.

H301+H331

Tossico se ingerito o inalato.

H302+H312

Nocivo se ingerito o a contatto con la pelle.

H302+H312+H332

Nocivo se ingerito, a contatto con la pelle o se inalato.

H302+H332

Nocivo se ingerito o inalato.

H303+H313

Può essere nocivo per ingestione o a contatto con la pelle.

H303+H313+H333

Può essere nocivo per ingestione, a contatto con la pelle o per inalazione.

H303+H333

Può essere nocivo per ingestione o per inalazione.

H310+H330

Mortale a contatto con la pelle o in caso di inalazione.

H311+H331

Tossico a contatto con la pelle o se inalato.

H312+H332

Nocivo a contatto con la pelle o se inalato.

H313+H333

Può essere nocivo a contatto con la pelle o per inalazione.

H315+H320

Provoca irritazione cutanea e agli occhi.

Indicaciones di pericolo per l'ambiente**H400**

Molto tossico per gli organismi acquatici.

H401

Tossico per gli organismi acquatici.

H402

Nocivo per gli organismi acquatici.

H410

Molto tossico per gli organismi acquatici con effetti di lunga durata.

H411

Tossico per gli organismi acquatici con effetti di lunga durata.

H412

Nocivo per gli organismi acquatici con effetti di lunga durata.

H413

Può essere nocivo per gli organismi acquatici con effetti di lunga durata.

H420

Nuoce alla salute pubblica e all'ambiente distruggendo l'ozono dello strato superiore dell'atmosfera

EUH - Codici**informazioni supplementari sui pericoli****EUH001**

Esplosivo allo stato secco.

EUH006

Esplosivo a contatto o senza contatto con l'aria.

EUH014

Reagisce violentemente con l'acqua.

EUH018

Durante l'uso può formarsi una miscela vapore-aria esplosiva/inflammabile.

EUH019

Può formare perossidi esplosivi.

EUH029

A contatto con l'acqua libera un gas tossico.

EUH031

A contatto con acidi libera gas tossici.

EUH032

A contatto con acidi libera gas molto tossici.

EUH044

Rischio di esplosione per riscaldamento in ambiente confinato.

EUH059

Pericoloso per lo strato di ozono.

EUH066

L'esposizione ripetuta può provocare secchezza o screpolature della pelle.

EUH070

Tossico per contatto oculare.

EUH071

Corrosivo per le vie respiratorie.

P - Codices**P101**

In caso di consultazione di un medico, tenere a disposizione il contenitore o l'etichetta del prodotto.

P102

Tenere fuori dalla portata dei bambini.

P103

Leggere l'etichetta prima dell'uso.

P201

Procurarsi istruzioni specifiche prima dell'uso.

P202

Non manipolare prima di avere letto e compreso tutte le avvertenze.

P210

Tenere lontano da fonti di calore/scintille/fiamme libere/superfici riscaldate. - Non fumare.

P210a

Tenere lontano da fonti di calore - Non fumare.

P210b

Tenere lontano da scintille - Non fumare.

P210c

Tenere lontano da fiamme libere. - Non fumare.

P210d

Tenere lontano da superfici riscaldate - Non fumare.

P211

Non vaporizzare su una fiamma libera o altra fonte di accensione.

P220

Tenere/conservare lontano da indumenti/materiali combustibili.

P220a

Tenere lontano da indumenti.

P220b

Tenere lontano da materiali combustibili.

P220c

Tenere lontano da riducenti, da composti di metalli pesanti, acidi e alcali.

P220d

Tenere lontano da sostanze ossidanti e acide e da composti di metalli pesanti.

P220e

Tenere lontano da ferro.

P220f

Tenere lontano da acqua.

P220g

Tenere lontano da acidi.

P220h

Tenere lontano da soluzioni alcaline.

P220i

Tenere lontano da metalli.

P220j

Tenere lontano da sostanze ossidanti e acide.

P220k

Tenere lontano da sostanze organiche infiammabili.

P220l

Tenere lontano da acidi, riducenti e materiali infiammabili.

P221

Prendere ogni precauzione per evitare di miscelare con sostanze combustibili.

P222

Evitare il contatto con l'aria.

P223

Evitare qualsiasi contatto con l'acqua: pericolo di reazione violenta e di infiammazione spontanea.

P230

Mantenere umido con....

P230a

Mantenere umido.

P231

Manipolare in atmosfera di gas inerte.

P232

Proteggere dall'umidità.

P233

Tenere il recipiente ben chiuso.

P234

Conservare soltanto nel contenitore originale.

P235

Conservare in luogo fresco.

P240

Mettere a terra/massa il contenitore e il dispositivo ricevente.

P241

Utilizzare impianti elettrici/di ventilazione/d'illuminazione/a prova di esplosione.

P242

Utilizzare solo utensili antiscintillamento.

P243

Prendere precauzioni contro le scariche elettrostatiche.

P244

Mantenere le valvole di riduzione libere da grasso e olio.

P250
Evitare le abrasioni/gli urti/gli attriti.

P251
Recipiente sotto pressione: non perforare né bruciare, neppure dopo l'uso.

P260
Non respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

P260a
Non respirare la polvere.

P260b
Non respirare i fumi.

P260c
Non respirare i gas.

P260d
Non respirare la nebbia.

P260e
Non respirare i vapori.

P260f
Non respirare gli aerosol.

P260g
Non respirare la nebbia/i vapori/gli aerosol.

P261
Evitare di respirare la polvere/i fumi/i gas/la nebbia/i vapori/gli aerosol.

P261a
Evitare di respirare la polvere.

P261b
Evitare di respirare i fumi.

P261c
Evitare di respirare i gas.

P261d
Evitare di respirare la nebbia.

P261e
Evitare di respirare i vapori.

P261f
Evitare di respirare gli aerosol.

P261g
Evitare di respirare la nebbia/i vapori/gli aerosol.

P262
Evitare il contatto con gli occhi, la pelle o gli indumenti.

P263
Evitare il contatto durante la gravidanza/l'allattamento.

P264
Lavare accuratamente dopo l'uso.

P270
Non mangiare, né bere, né fumare durante l'uso.

P271
Utilizzare soltanto all'aperto o in luogo ben ventilato.

P272
Gli indumenti da lavoro contaminati non devono essere portati fuori dal luogo di lavoro.

P273
Non disperdere nell'ambiente.

P280
Indossare guanti/indumenti protettivi/Proteggere gli occhi/il viso.

P280a
Indossare guanti / occhiali di protezione / protezione per il viso.

P280b
Indossare guanti di protezione / occhiali di protezione.

P280c
Indossare guanti di protezione / protezione per il viso.

P280d
Indossare indumenti protettivi / occhiali di protezione.

P280e
Indossare indumenti protettivi / protezione per il viso.

P280f
Indossare indumenti protettivi.

P280g
Indossare guanti di protezione.

P280h
Indossare guanti di protezione / indumenti protettivi.

P280i
Indossare protezione per occhi / protezione per il viso.

P280j
Indossare protezione per il viso.

P281
Utilizzare il dispositivo di protezione individuale richiesto.

P282
Utilizzare guanti termici/schermo facciale/Proteggere gli occhi.

P283
Indossare indumenti completamente ignifughi o in tessuti ritardanti di fiamma.

P284
Utilizzare un apparecchio respiratorio.

P285
In caso di ventilazione insufficiente utilizzare un apparecchio respiratorio.

P301
IN CASO DI INGESTIONE:

P302
IN CASO DI CONTATTO CON LA PELLE:

P303
IN CASO DI CONTATTO CON LA PELLE (o con i capelli):

P304
IN CASO DI INALAZIONE:

P305
IN CASO DI CONTATTO CON GLI OCCHI:

P306
IN CASO DI CONTATTO CON GLI INDUMENTI:

P307
IN CASO di esposizione:**P308**
IN CASO di esposizione o di possibile esposizione:

P309
IN CASO di esposizione o di malessere:

P310
Contattare immediatamente un CENTRO ANTIVELENI o un medico.

P311
Contattare un CENTRO ANTIVELENI o un medico.

P312
In caso di malessere, contattare un CENTRO ANTIVELENI o un medico.

P313
Consultare un medico.

P314
In caso di malessere, consultare un medico.

P315
Consultare immediatamente un medico.

P320
Trattamento specifico urgente (vedere su questa etichetta).

P321
Trattamento specifico (vedere su questa etichetta).

P322
Misure specifiche (vedere su questa etichetta).

P330
Sciacquare la bocca.

P331
NON provocare il vomito.

P332
In caso di irritazione della pelle:

P333
In caso di irritazione o eruzione della pelle:

P334
Immergere in acqua fredda/avvolgere con un bendaggio umido.

P335
Rimuovere le particelle depositate sulla pelle.

P336
Sgelare le parti congelate usando acqua tiepida. Non sfregare la parte interessata.

P337
Se l'irritazione degli occhi persiste:

P338
Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

P340
Trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

P341
Se la respirazione è difficile, trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

P342
In caso di sintomi respiratori:

P350
Lavare delicatamente e abbondantemente con acqua e sapone.

P351
Sciacquare accuratamente per parecchi minuti.

P352
Lavare abbondantemente con acqua e sapone.

P353
Sciacquare la pelle/fare una doccia.

P360
Sciacquare immediatamente e abbondantemente gli indumenti contaminati e la pelle prima di togliersi gli indumenti.

P361
Togliersi di dosso immediatamente tutti gli indumenti contaminati.

P362
Togliersi di dosso gli indumenti contaminati e lavarli prima di indossarli nuovamente.

P363
Lavare gli indumenti contaminati prima di indossarli nuovamente.

P364
E lavarli prima di indossarli nuovamente.

P370
In caso di incendio:

P371
In caso di incendio grave e di quantità rilevanti:

P372
Rischio di esplosione in caso di incendio.

P373
NON utilizzare mezzi estinguenti se l'incendio raggiunge materiali esplosivi.

P374
Utilizzare i mezzi estinguenti con le precauzioni abituali a distanza ragionevole.

P375
Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

P376
Bloccare la perdita se non c'è pericolo.

P377
In caso d'incendio dovuto a perdita di gas, non estinguere a meno che non sia possibile bloccare la perdita senza pericolo.

P378
Estinguere con...

P378a
Estinguere con: CO₂, polvere per estintore o acqua nebulizzata.

P378b
Estinguere con: Polvere speciale per incendi di metalli.

P378c
Estinguere con: CO₂, sabbia, polvere per estintore.

P378d
Estinguere con: Acqua.

P378e
Estinguere con: Acqua nebulizzata.

P378f
Estinguere con: Getto d'acqua.

P378g
Estinguere con: Schiuma.

P378h
Estinguere con: Schiuma resistente all'alcool.

P378i
Estinguere con: Polvere per estintore.

P378j
Estinguere con: Polvere BC.

P378k
Estinguere con: Polvere ABC.

P378l
Estinguere con: Anidride carbonica.

P378m
Estinguere con: Polvere calcarea.

P378n
Estinguere con: Cemento.

P378o
Estinguere con: Sabbia.

P378p
Estinguere con: Sabbia asciutta.

P380
Evacuare la zona.

P381
Eliminare ogni fonte di accensione se non c'è pericolo.

P390
Assorbire la fuoriuscita per evitare danni materiali.

P391
Raccogliere il materiale fuoriuscito.

P301+P310
IN CASO DI INGESTIONE: contattare immediatamente un CENTRO ANTIVELENI o un medico.

P301+P312
IN CASO DI INGESTIONE accompagnata da malessere: contattare un CENTRO ANTIVELENI o un medico.

P301+P330+P331
IN CASO DI INGESTIONE: sciacquare la bocca. NON provocare il vomito.

P302+P334
IN CASO DI CONTATTO CON LA PELLE: immergere in acqua fredda/avvolgere con un bendaggio umido.

P302+P350
IN CASO DI CONTATTO CON LA PELLE: lavare delicatamente e abbondantemente con acqua e sapone.

P302+P352
IN CASO DI CONTATTO CON LA PELLE: lavare abbondantemente con acqua e sapone.

P303+P361+P353
IN CASO DI CONTATTO CON LA PELLE (o con i capelli): togliersi di dosso immediatamente tutti gli indumenti contaminati. Sciacquare la pelle/fare una doccia.

P304+P312
IN CASO DI INALAZIONE accompagnata da malessere: Contattare un CENTRO ANTIVELENI o un medico.

P304+P340
IN CASO DI INALAZIONE: trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

P304+P341
IN CASO DI INALAZIONE: se la respirazione è difficile, trasportare l'infortunato all'aria aperta e mantenerlo a riposo in posizione che favorisca la respirazione.

P305+P351+P338
IN CASO DI CONTATTO CON GLI OCCHI: sciacquare accuratamente per parecchi minuti. Togliere le eventuali lenti a contatto se è agevole farlo. Continuare a sciacquare.

P306+P360
IN CASO DI CONTATTO CON GLI INDUMENTI: sciacquare immediatamente e abbondantemente gli indumenti contaminati e la pelle prima di togliersi gli indumenti.

P307+P311
IN CASO di esposizione, contattare un CENTRO ANTIVELENI o un medico.

P308+P311

In caso di esposizione o di possibile esposizione: contattare un CENTRO ANTIVELENI/un medico.

P308+P313

IN CASO di esposizione o di possibile esposizione, consultare un medico.

P309+P311

IN CASO di esposizione o di malessere, contattare un CENTRO ANTIVELENI o un medico.

P231+P232

Manipolare in atmosfera di gas inerte. Tenere al riparo dall'umidità.

P332+P313

In caso di irritazione della pelle: consultare un medico.

P333+P313

In caso di irritazione o eruzione della pelle: consultare un medico.

P335+P334

Rimuovere le particelle depositate sulla pelle. Immergere in acqua fredda/avvolgere con un bendaggio umido.

P235+P410

Tenere in luogo fresco. Proteggere dai raggi solari.

P337+P313

Se l'irritazione degli occhi persiste, consultare un medico.

P342+P311

In caso di sintomi respiratori: contattare un CENTRO ANTIVELENI o un medico.

P361+P364

Togliersi di dosso immediatamente gli indumenti contaminati e lavarli prima di indossarli nuovamente.

P362+P364

Togliersi di dosso gli indumenti contaminati e lavarli prima di indossarli nuovamente.

P370+P376

In caso di incendio: bloccare la perdita se non c'è pericolo.

P370+P378

In caso di incendio: estinguere con....

P370+P378a

In caso di incendio: Estinguere con: CO₂, polvere per estintore o acqua nebulizzata.

P370+P378b

In caso di incendio: Estinguere con: Polvere speciale per incendi di metalli.

P370+P378c

In caso di incendio: Estinguere con: CO₂, sabbia, polvere per estintore.

P370+P378d

In caso di incendio: Estinguere con: Acqua.

P370+P378e

In caso di incendio: Estinguere con: Acqua nebulizzata.

P370+P378f

In caso di incendio: Estinguere con: Getto d'acqua.

P370+P378g

In caso di incendio: Estinguere con: Schiuma.

P370+P378h

In caso di incendio: Estinguere con: Schiuma resistente all'alcool.

P370+P378i

In caso di incendio: Estinguere con: Polvere per estintore.

P370+P378j

In caso di incendio: Estinguere con: Polvere BC.

P370+P378k

In caso di incendio: Estinguere con: Polvere ABC.

P370+P378l

In caso di incendio: Estinguere con: Anidride carbonica.

P370+P378m

In caso di incendio: Estinguere con: Polvere calcarea.

P370+P378n

In caso di incendio: Estinguere con: Cemento.

P370+P378o

In caso di incendio: Estinguere con: Sabbia.

P370+P378p

In caso di incendio: Estinguere con: Sabbia asciutta.

P370+P380

Evacuare la zona in caso di incendio.

P370+P380+P375

In caso di incendio: evacuare la zona. Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

P371+P380+P375

In caso di incendio grave e di grandi quantità: evacuare la zona. Rischio di esplosione. Utilizzare i mezzi estinguenti a grande distanza.

P401

Conservare...

P401a

Conservare secondo i regolamenti locali/regionali/nazionali/internazionali.

P402

Conservare in luogo asciutto.

P403

Conservare in luogo ben ventilato.

P404

Conservare in un recipiente chiuso.

P405

Conservare sotto chiave. **P406**

Conservare in recipiente resistente alla corrosione provvisto di rivestimento interno resistente.

P407

Mantenere uno spazio libero tra gli scaffali/i pallet.

P410

Proteggere dai raggi solari.

P411

Conservare a temperature non superiori a ... °C/ ... °F.

P411a

Conservare a temperature non superiori a... °C.

P411b

Conservare a temperature non superiori a... °F.

P412

Non esporre a temperature superiori a 50 °C/122 °F.

P413

Conservare le rinfuse di peso superiore a ...kg/ ...lb a temperature non superiori a ... °C/ ... °F.

P413a

Conservare le rinfuse di peso superiore a ...kg a temperature non superiori a... °C.

P413b

Conservare le rinfuse di peso superiore a ...lb a temperature non superiori a ...°F.

P420

Conservare lontano da altri materiali.

P420a

Conservare lontano da alimenti.

P420b

Conservare lontano da sostanze infiammabili.

P420c

Conservare lontano dal ossidanti.

P420d

Conservare lontano da riducenti.

P420e

Conservare lontano dal acqua.

P420f

Conservare lontano da metalli.

P420g

Conservare lontano dai acidi.

P420h

Conservare lontano da sostanze alcaline.

P422

Conservare sotto...

P422a

Conservare sotto gas inerte.

P422b

Conservare sotto gas protettivo.

P422c

Conservare sotto solvente.

P422d

Conservare in acqua.

P422e

Conservare sotto petrolio.

P422f

Conservare sotto azoto.

P402+P404

Conservare in luogo asciutto e in recipiente chiuso.

P403+P233

Tenere il recipiente ben chiuso e in luogo ben ventilato.

P403+P235

Conservare in luogo fresco e ben ventilato.

P410+P403

Proteggere dai raggi solari. Conservare in luogo ben ventilato.

P410+P412

Proteggere dai raggi solari. Non esporre a temperature superiori a 50 °C/122 °F.

P411+P235

Conservare in luogo fresco a temperature non superiori a ...°C/ ...°F.

P411a+P235

Conservare in luogo fresco a temperature non superiori a ...°C.

P411b+P235

Conservare in luogo fresco a temperature non superiori a... °F.

P501

Smaltire il prodotto/recipiente in ...

P501a

Smaltire il prodotto/recipiente in conformità con le disposizioni locali / regionali / nazionali / internazionali.

P502

Chiedere informazioni al produttore o fornitore per il recupero/riciclaggio

Sistema Globalmente Armonizado de clasificación y etiquetado de productos químicos (SGA)

Peligro		GHS01	H200, H201, H202, H203, H240, H241
Atención		GHS01	H204
Peligro		GHS02	H220, H222, H224, H225, H228, H229, H241, H242, H250, H251, H260, H261
Atención		GHS02	H223, H226, H228, H229, H242, H252, H261
Atención	Sin pictograma		H221, H229
Peligro		GHS03	H270, H271, H272
Atención		GHS03	H272
Atención		GHS04	H280, H281
Peligro		GHS06	H300, H310, H330, H301, H311, H331
Atención		GHS07	H302, H312, H332
Peligro		GHS08	H340, H350, H360, H370, H372, H334, H304
Atención		GHS08	H341, H351, H361, H371, H373
Peligro		GHS09	H314, H318
Atención		GHS09	H290
Atención		GHS07	H315, H319, H317, H335, H336, H420
Atención		GHS09	H400, H410
Sin palabra de advertencia		GHS09	H411

The GHS regulation resp. CLP (regulation on Classification, Labeling and Packaging of Substances and Mixtures) regulation (EG) No 1272/2008 has become effective on 20th January 2009.

This regulation will amend and repeal Directives 67/548/EEC and 1999/45/EC over a period of a few years, and amend Regulation (EC) No 1907/2006. It's the aim of this regulation to ensure a high level of protection of human health and the environment. In addition it is essential to harmonize the provisions and criteria for the classification and labeling of substances and mixtures.

With this information we would like to give our customers an insight into the new systematic and simultaneously provide an opportunity to become acquainted with the new pictograms as well as with the H (hazard warnings)- and P (safety information) codes.

H - Códigos

Indicaciones de peligro asignada a peligro físico

H200
Explosivo inestable.

H201
Explosivo; peligro de explosión en masa.

H202
Explosivo; grave peligro de proyección.

H203
Explosivo; peligro de incendio, de onda expansiva o de proyección.

H204
Peligro de incendio o de proyección.

H205
Peligro de explosión en masa en caso de incendio.

H220
Gas extremadamente inflamable.

H221
Gas inflamable.

H222
Aerosol extremadamente inflamable.

H223
Aerosol inflamable.

H224
Líquido y vapores extremadamente inflamables.

H225
Líquido y vapores muy inflamables.

H226
Líquidos y vapores inflamables.

H227
Líquido combustible.

H228
Sólido inflamable.

H229
Envase a presión. Puede reventar si se calienta.

H230
Puede explotar incluso en ausencia de aire.

H231
Puede explotar incluso en ausencia de aire, a presión y/o temperatura elevadas.

H240
Peligro de explosión en caso de calentamiento.

H241
Peligro de incendio o explosión en caso de calentamiento.

H242
Peligro de incendio en caso de calentamiento.

H250
Se inflama espontáneamente en contacto con el aire.

H251
Se calienta espontáneamente; puede inflamarse.

H252
Se calienta espontáneamente en grandes cantidades; puede inflamarse.

H260
En contacto con el agua desprende gases inflamables que pueden inflamarse espontáneamente.

H261
En contacto con el agua desprende gases inflamables.

H270
Puede provocar o agravar un incendio; comburente.

H271
Puede provocar un incendio o una explosión; muy comburente.

H272
Puede agravar un incendio; comburente.

H280
Contiene gas a presión; peligro de explosión en caso de calentamiento.

H281
Contiene un gas refrigerado; puede provocar quemaduras o lesiones criogénicas.

H290
Puede ser corrosivo para los metales.

Indicaciones de peligro para la salud humana

H300
Mortal en caso de ingestión.

H301
Tóxico en caso de ingestión.

H302
Nocivo en caso de ingestión.

H303
Puede ser nocivo en caso de ingestión.

H304
Puede ser mortal en caso de ingestión y penetración en las vías respiratorias.

H305
Puede ser nocivo en caso de ingestión y de penetración en las vías respiratorias.

H310
Mortal en contacto con la piel.

H311
Tóxico en contacto con la piel.

H312
Nocivo en contacto con la piel.

H313
Puede ser nocivo en contacto con la piel.

H314
Provoca quemaduras graves en la piel y lesiones oculares graves.

H315
Provoca irritación cutánea.

H316
Provoca una leve irritación cutánea.

H317
Puede provocar una reacción alérgica en la piel.

H318
Provoca lesiones oculares graves.

H319
Provoca irritación ocular grave.

H320
Provoca irritación ocular.

H330
Mortal en caso de inhalación.

H331
Tóxico en caso de inhalación.

H332
Nocivo en caso de inhalación.

H333
Puede ser nocivo si se inhala.

H334
Puede provocar síntomas de alergia o asma o dificultades respiratorias en caso de inhalación.

H335
Puede irritar las vías respiratorias.

H336
Puede provocar somnolencia o vértigo.

H340
Puede provocar defectos genéticos.

H341
Se sospecha que provoca defectos genéticos.

H350
Puede provocar cáncer.

H350i
Puede provocar cáncer por inhalación.

H351
Se sospecha que provoca cáncer.

H351i
Podría provocar cáncer probablemente a causa de la inhalación.

H360
Puede perjudicar la fertilidad o dañar al feto.

H360D
Puede dañar al feto.

H360Df
Puede dañar al feto. Se sospecha que perjudica a la fertilidad.

H360F
Puede dañar al feto.

H360FD
Puede perjudicar a la fertilidad. Puede dañar al feto.

H360Fd
Puede perjudicar a la fertilidad. Se sospecha que daña al feto.

H361
Se sospecha que perjudica la fertilidad o daña al feto.

H361d
Se sospecha que daña al feto.

H361f
Se sospecha que perjudica a la fertilidad.

H361fd

Se sospecha que perjudica a la fertilidad. Se sospecha que daña al feto.

H362

Puede perjudicar a los niños alimentados con leche materna.

H370

Provoca daños en los órganos.

H371

Puede provocar daños en los órganos.

H372

Provoca daños en los órganos tras exposiciones prolongadas o repetidas.

H373

Puede provocar daños en los órganos tras exposiciones prolongadas o repetidas.

H300+H310

Mortal en caso de ingestión o en contacto con la piel.

H300+H310+H330

Mortal en caso de ingestión, contacto con la piel o inhalación.

H300+H330

Mortal en caso de ingestión o inhalación.

H301+H311

Tóxico en caso de ingestión o en contacto con la piel.

H301+H311+H331

Tóxico en caso de ingestión, contacto con la piel o inhalación.

H301+H331

Tóxico en caso de ingestión o inhalación.

H302+H312

Nocivo en caso de ingestión o en contacto con la piel.

H302+H312+H332

Nocivo en caso de ingestión, contacto con la piel o inhalación.

H302+H332

Nocivo en caso de ingestión o inhalación.

H303+H313

Puede ser nocivo en caso de ingestión o en contacto con la piel.

H303+H313+H333

Puede ser nocivo en caso de ingestión, en contacto con la piel o si se inhala.

H303+H333

Puede ser nocivo en caso de ingestión o si se inhala.

H310+H330

Mortal en contacto con la piel o si se inhala.

H311+H331

Tóxico en contacto con la piel o si se inhala.

H312+H332

Nocivo en contacto con la piel o si se inhala.

H313+H333

Puede ser nocivo en contacto con la piel o si se inhala.

H315+H320

Provoca irritación cutánea y ocular.

Indicaciones de peligro para el medio ambiente**H400**

Muy tóxico para los organismos acuáticos.

H401

Tóxico para los organismos acuáticos.

H402

Nocivo para los organismos acuáticos.

H410

Muy tóxico para los organismos acuáticos, con efectos nocivos duraderos.

H411

Tóxico para los organismos acuáticos, con efectos nocivos duraderos.

H412

Nocivo para los organismos acuáticos, con efectos nocivos duraderos.

H413

Puede ser nocivo para los organismos acuáticos, con efectos nocivos duraderos.

H420

Causa daños a la salud pública y el medio ambiente al destruir el ozono en la atmósfera superior

EUH - Códigos**Información suplementaria sobre los peligros****EUH001**

Explosivo en estado seco.

EUH006

Explosivo en contacto o sin contacto con el aire.

EUH014

Reacciona violentamente con el agua.

EUH018

Al usarlo pueden formarse mezclas aire-vapor explosivas o inflamables.

EUH019

Puede formar peróxidos explosivos.

EUH029

En contacto con agua libera gases tóxicos.

EUH031

En contacto con ácidos libera gases tóxicos.

EUH032

En contacto con ácidos libera gases muy tóxicos.**EUH044**

Riesgo de explosión al calentarlo en ambiente confinado.

EUH059

Peligroso para la capa de ozono.

EUH066

La exposición repetida puede provocar sequedad o formación de grietas en la piel.

EUH070

Tóxico en contacto con los ojos.

EUH071

Corrosivo para las vías respiratorias.

P - Códigos**P101**

Si se necesita consejo médico, tener a mano el envase o la etiqueta.

P102

Mantener fuera del alcance de los niños.

P103

Leer la etiqueta antes del uso.

P201

Pedir instrucciones especiales antes del uso.

P202

No manipular la sustancia antes de haber leído y comprendido todas las instrucciones de seguridad.**210**

Mantener alejado de fuentes de calor, chispas, llama abierta o superficies calientes. - No fumar.

P210a

Mantener alejado de fuentes de calor. - No fumar.

P210b

Mantener alejado de chispas. - No fumar.

P210c

Mantener alejado de llama abierta. - No fumar.

P210d

Mantener alejado de superficies calientes. - No fumar.

P211

No pulverizar sobre una llama abierta u otra fuente de ignición.

P220

Mantener o almacenar alejado de la ropa/materiales combustibles.

P220a

Mantener o almacenar alejado de la ropa.

P220b

Mantener o almacenar alejado de materiales combustibles.

P220c

Mantener alejado de agentes reductores, combinaciones de metales pesados, ácidos y álcalis.

P220d

Mantener alejado de los productos oxidantes, ácidos y combinaciones de metales pesados.

P220e

Mantener alejado del hierro.

P220f

Mantener alejado del agua.

P220g

Mantener alejado de los ácidos.

P220h

Mantener alejado de las sosas.

P220i

Mantener alejado de los metales.

P220j

Mantener alejado de los productos oxidantes y ácidos.

P220k

Mantener alejado de las sustancias orgánicas combustibles.

P220l

Mantener alejado de los ácidos, agentes reductores y materiales combustibles.

P221

Tomar todas las precauciones necesarias para no mezclar con materias combustibles.

P222

No dejar que entre en contacto con el aire.

P223

Mantener alejado de cualquier posible contacto con el agua, pues reacciona violentamente y puede provocar una llamarada.

P230

Mantener humedecido con...

P230a

Mantener humedecido.

P231

Manipular en gas inerte.

P232

Proteger de la humedad.

P233

Mantener el recipiente herméticamente cerrado.

P234

Conservar únicamente en el recipiente original.

P235

Mantener en lugar fresco.

P240

Conectar a tierra/enlace equipotencial del recipiente y del equipo de recepción.

P241

Utilizar un material eléctrico, de ventilación o de iluminación/antideflagrante.

P242

Utilizar únicamente herramientas que no produzcan chispas.

P243

Tomar medidas de precaución contra descargas electrostáticas.

P244

Mantener las válvulas de reducción limpias de grasa y aceite.

P250

Evitar la abrasión/el choque/la fricción.

P251

Recipiente a presión: no perforar ni quemar, aun después del uso.

P260

No respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P260a

No respirar el polvo.

P260b

No respirar el el humo.

P260c

No respirar el el gas.

P260d

No respirar el la niebla.

P260e

No respirar el los vapores.

P260f

No respirar el el aerosol.

P260g

No respirar el la niebla/los vapores/el aerosol.

P261

Evitar respirar el polvo/el humo/el gas/la niebla/los vapores/el aerosol.

P261a

Evitar respirar el polvo.

P261b

Evitar respirar el humo.

P261c

Evitar respirar el gas.

P261d

Evitar respirar la niebla.

P261e

Evitar respirar los vapores.

P261f

Evitar respirar el aerosol.

P261g

Evitar respirar la niebla/los vapores/el aerosol.

P262

Evitar el contacto con los ojos, la piel o la ropa.

P263

Evitar el contacto durante el embarazo/la lactancia.

P264

Lavarse concienzudamente tras la manipulación.

P270

No comer, beber ni fumar durante su utilización.

P271

Utilizar únicamente en exteriores o en un lugar bien ventilado.

P272

Las prendas de trabajo contaminadas no podrán sacarse del lugar de trabajo.

P273

Evitar su liberación al medio ambiente.

P280

Llevar guantes/prendas/gafas/máscara de protección.

P280a

Llevar guantes de protección / gafas de protección / máscara de protección.

P280b

Llevar guantes de protección / gafas de protección.

P280c

Llevar guantes de protección / máscara de protección.

P280d

Llevar prendas de protección / gafas de protección.

P280e

Llevar prendas de protección / máscara de protección.

P280f

Llevar prendas de protección.

P280g
Llevar guantes de protección.

P280h
Llevar guantes de protección / prendas de protección.**P280i**
Llevar gafas de protección / máscara de protección.

P280j
Llevar máscara de protección.

P282
Llevar guantes que aislen del frío/gafas/máscara.

P283
Llevar prendas ignífugas/resistentes al fuego/resistentes a las llamas.

P284
Llevar equipo de protección respiratoria.

P301
EN CASO DE INGESTIÓN:

P302
EN CASO DE CONTACTO CON LA PIEL:

P303
EN CASO DE CONTACTO CON LA PIEL (o el pelo):

P304
EN CASO DE INHALACIÓN:

P305
EN CASO DE CONTACTO CON LOS OJOS:

P306
EN CASO DE CONTACTO CON LA ROPA:

P308
EN CASO DE exposición manifiesta o presunta:

P310
Llamar inmediatamente a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico.

P311
Llamar a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico.

P312
Llamar a un CENTRO DE INFORMACION TOXICOLOGICA o a un médico en caso de malestar.

P313
Consultar a un médico.

P314
Consultar a un médico en caso de malestar.

P315
Consultar a un médico inmediatamente.

P320
Se necesita urgentemente un tratamiento específico (ver en esta etiqueta).

P321
Se necesita un tratamiento específico (ver en esta etiqueta).

P330
Enjuagarse la boca.

P331
NO provocar el vómito.

P332
En caso de irritación cutánea:

P333
En caso de irritación o erupción cutánea:

P334
Sumergir en agua fresca/aplicar compresas húmedas.

P335
Sacudir las partículas que se hayan depositado en la piel.

P336
Descongelar las partes heladas con agua tibia. No frotar la zona afectada.

P337
Si persiste la irritación ocular:

P338
Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.

P340
Transportar a la víctima al exterior y mantenerla en reposo en una posición confortable para respirar.

P342
En caso de síntomas respiratorios:

P351
Aclarar cuidadosamente con agua durante varios minutos.

P352
Lavar con agua y jabón abundantes.

P353
Aclararse la piel con agua/ ducharse.

P360
Aclarar inmediatamente con agua abundante las prendas y la piel contaminadas antes de quitarse la ropa.

P361
Quitar inmediatamente las prendas contaminadas.

P362
Quitar las prendas contaminadas y lavarlas antes de volver a usarlas.

P363
Lavar las prendas contaminadas antes de volver a usarlas.

P364
Y lavarla antes de volverla a usar.

P370
En caso de incendio:

P371
En caso de incendio importante y en grandes cantidades:

P372
Riesgo de explosión en caso de incendio.

P373
NO luchar contra el incendio cuando el fuego llega a los explosivos.

P374
Luchar contra el incendio desde una distancia razonable, tomando las precauciones habituales.

P375
Luchar contra el incendio a distancia, dado el riesgo de explosión.

P376
Detener la fuga, si no hay peligro en hacerlo.

P377
Fuga de gas en llamas: No apagar, salvo si la fuga puede detenerse sin peligro.

P378
Utilizar ... para apagarlo.

P378a
Utilizar para apagarlo: CO₂, polvo extintor o chorro de agua rociada.

P378b
Utilizar para apagarlo: Polvo especial para incendios de metales.

P378c
Utilizar para apagarlo: CO₂, arena, polvo extintor.

P378d
Utilizar para apagarlo: Agua.

P378e
Utilizar para apagarlo: Agua nebulizada.

P378f
Utilizar para apagarlo: Chorro de agua rociada.

P378g
Utilizar para apagarlo: Espuma.

P378h
Utilizar para apagarlo: Espuma resistente al alcohol.

P378i
Utilizar para apagarlo: Polvo extintor.

P378j
Utilizar para apagarlo: Polvo BC.

P378k
Utilizar para apagarlo: Polvo ABC.

P378l
Utilizar para apagarlo: Dióxido de carbono CO₂.

P378m
Utilizar para apagarlo: Polvo de carbonato de calcio.

P378n
Utilizar para apagarlo: Cemento.**P378o**
Utilizar para apagarlo: Arena.

P378p
Utilizar para apagarlo: Arena seca.

P380
Evacuar la zona.

P381
Eliminar todas las fuentes de ignición si no hay peligro en hacerlo.

P390
Absorber el vertido para que no dañe otros materiales.

P391
Recoger el vertido.

P301+P310
EN CASO DE INGESTIÓN: Llamar inmediatamente a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico.

P301+P312
EN CASO DE INGESTIÓN: Llamar a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico si se encuentra mal.

P301+P330+P331
EN CASO DE INGESTIÓN: Enjuagarse la boca. NO provocar el vómito.

P302+P334
EN CASO DE CONTACTO CON LA PIEL: Sumergir en agua fresca/aplicar compresas húmedas.

P302+P352
EN CASO DE CONTACTO CON LA PIEL: Lavar con agua y jabón abundantes.

P303+P361+P353
EN CASO DE CONTACTO CON LA PIEL (o el pelo): Quitarse inmediatamente las prendas contaminadas. Aclararse la piel con agua o ducharse.

P304+P312
EN CASO DE INHALACIÓN: Llame a un CENTRO ANTIVENENO o a un médico si se encuentra mal.

P304+P340
EN CASO DE INHALACIÓN: Transportar a la víctima al exterior y mantenerla en reposo en una posición confortable para respirar.

P305+P351+P338
EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando.

P306+P360
EN CASO DE CONTACTO CON LA ROPA: Aclarar inmediatamente con agua abundante las prendas y la piel contaminadas antes de quitarse la ropa.

P308+P311
EN CASO DE exposición demostrada o supuesta: Llamar a un CENTRO DE TOXICOLOGÍA/médico/...

P308+P313
EN CASO DE exposición manifiesta o presunta: Consultar a un médico.

P231+P232
Manipular en gas inerte. Proteger de la humedad.

P332+P313
En caso de irritación cutánea: Consultar a un médico.

P333+P313
En caso de irritación o erupción cutánea: Consultar a un médico.

P335+P334
Sacudir las partículas que se hayan depositado en la piel. Sumergir en agua fresca/aplicar compresas húmedas.

P235+P410
Conservar en un lugar fresco. Proteger de la luz del sol.

P337+P313
Si persiste la irritación ocular: Consultar a un médico.

P342+P311
En caso de síntomas respiratorios: Llamar a un CENTRO DE INFORMACIÓN TOXICOLÓGICA o a un médico.

P361+P364
Quitar inmediatamente toda la ropa contaminada y lavarla antes de volverla a usar.

P362+P364
Quitar la ropa contaminada y lavarla antes de volverla a usar.

P370+P376
En caso de incendio: Detener la fuga, si no hay peligro en hacerlo.

P370+P378
En caso de incendio: Utilizar ... para apagarlo.

P370+P378a
En caso de incendio: Utilizar para apagarlo: CO₂, polvo extintor o chorro de agua rociada.

P370+P378b
En caso de incendio: Utilizar para apagarlo: Polvo especial para incendios de metales.

P370+P378c
En caso de incendio: Utilizar para apagarlo: CO₂, arena, polvo extintor.

P370+P378d
En caso de incendio: Utilizar para apagarlo: Agua.

P370+P378e
En caso de incendio: Utilizar para apagarlo: Agua nebulizada.

P370+P378f
En caso de incendio: Utilizar para apagarlo: Chorro de agua rociada.

P370+P378g
En caso de incendio: Utilizar para apagarlo: Espuma.

P370+P378h
En caso de incendio: Utilizar para apagarlo: Espuma resistente al alcohol.

P370+P378i
En caso de incendio: Utilizar para apagarlo: Polvo extintor.

P370+P378j
En caso de incendio: Utilizar para apagarlo: Polvo BC.

P370+P378k
En caso de incendio: Utilizar para apagarlo: Polvo ABC.

P370+P378l
En caso de incendio: Utilizar para apagarlo: Dióxido de carbono CO₂.

P370+P378m
En caso de incendio: Utilizar para apagarlo: Polvo de carbonato de calcio.

P370+P378n
En caso de incendio: Utilizar para apagarlo: Cemento.

P370+P378o
En caso de incendio: Utilizar para apagarlo: Arena.

P370+P378p
En caso de incendio: Utilizar para apagarlo: Arena seca.

P370+P380
En caso de incendio: Evacuar la zona.

P370+P380+P375
En caso de incendio: Evacuar la zona. Luchar contra el incendio a distancia, dado el riesgo de explosión.

P371+P380+P375
En caso de incendio importante y en grandes cantidades: Evacuar la zona. Luchar contra el incendio a distancia, dado el riesgo de explosión.

P401
Almacenar ...

P401a
Almacenar conforme a la reglamentación local/regional/nacional/internacional.

P402
Almacenar en un lugar seco.

P403
Almacenar en un lugar bien ventilado.

P404
Almacenar en un recipiente cerrado.

P405

Guardar bajo llave.

P406

Almacenar en un recipiente resistente a la corrosión con revestimiento interior resistente.

P407

Dejar una separación entre los bloques/los palés de carga.

P410

Proteger de la luz del sol.

P411

Almacenar a temperaturas no superiores a ...°C/ ...°F.

P411a

Almacenar a temperaturas no superiores a ...°C.

P411b

Almacenar a temperaturas no superiores a ...°F.

P412

No exponer a temperaturas superiores a 50 °C/122 °F.

P413

Almacenar las cantidades a granel superiores a ...kg/ ...lbs a temperaturas no superiores a ...°C/ ...°F.

P413a

Almacenar las cantidades a granel superiores a ...kg a temperaturas no superiores a ...°C.

P413b

Almacenar las cantidades a granel superiores a ...lbs a temperaturas no superiores a ...°F.

P420

Almacenar alejado de otros materiales. **P420a**

Almacenar alejado de alimentos.

P420b

Almacenar alejado de materiales inflamables.

P420c

Almacenar alejado de agentes oxidantes.

P420d

Almacenar alejado de agentes reductores.

P420e

Almacenar alejado de agua.

P420f

Almacenar alejado de metales.

P420g

Almacenar alejado de ácidos.

P420h

Almacenar alejado de agentes alcalinos (lejías).

P422

Almacenar el contenido en ...

P422a

Almacenar el contenido en gas inerte.

P422b

Almacenar el contenido en gas protector.

P422c

Almacenar el contenido en disolvente.

P422d

Almacenar inmerso en agua.

P422e

Almacenar inmerso en petróleo.

P422f

Almacenar inmerso en nitrógeno.

P402+P404

Almacenar en un lugar seco.

P403+P233

Almacenar en un lugar bien ventilado. Mantener el recipiente cerrado herméticamente.

P403+P235

Almacenar en un lugar bien ventilado. Mantener en lugar fresco.

P410+P403

Proteger de la luz del sol. Almacenar en un lugar bien ventilado.

P410+P412

Proteger de la luz del sol. No exponer a temperaturas superiores a 50 °C/122 °F.

P411+P235

Almacenar a temperaturas no superiores a ...°C/ ...°F. Mantener en lugar fresco.

P411a+P235

Almacenar a temperaturas no superiores a ...°C. Mantener en lugar fresco.

P411b+P235

Almacenar a temperaturas no superiores a ...°F. Mantener en lugar fresco.

P501

Eliminar el contenido/el recipiente en ...

P501a

Eliminar el contenido o el recipiente conforme a la legislación local/regional/nacional/internacional.

P502

Pedir información al fabricante o proveedor sobre su recuperación o reciclado

I. Geltungsbereich und Einbeziehung

1. Es gelten ausschließlich unsere AGB. Hiervon abweichende AGB des Kunden werden nur durch ausdrückliche Vereinbarung in Schriftform oder durch Erklärungen mit qualifizierter elektronischer Unterschrift wirksam in einbezogen. Nach Vertragsabschluss ist die Einbeziehung abweichender AGB formfrei möglich.
2. Unsere AGB gelten nur gegenüber Unternehmen und juristischen Personen des öffentlichen Rechts (einschließlich den nicht rechtsfähigen Anstalten d.ö.R.); sie gelten auch für zukünftige Verträge mit diesen, ohne dass es erneuter Vereinbarung ihrer Einbeziehung bedarf.

II. Bindung an Angebote, Angaben bei Vertragsabschluss, Abweichungen von Angaben bei Vertragsabschluss

1. Wir sind berechtigt, unsere Angebote bis zur Annahme zu widerrufen, es sei denn wir bezeichnen unser Angebot als bindend.
2. Auf unserer Webseite, in Katalogen oder ähnlichen Unterlagen enthaltene die Leistung oder das Produkt beschreibende Angaben sowie öffentliche Äußerungen von uns oder von Herstellern sind nicht verbindlich, es sei denn die dort genannte Eigenschaft wurde als Beschaffenheit der Ware mit dem Kunden vereinbart oder der Kunde kann sie aufgrund der öffentlichen Äußerungen erwarten.
3. Abweichungen von vereinbarten Produkt- oder Leistungseigenschaften berühren nicht die Erfüllung von Verträgen, sofern sie dem Kunden zumutbar sind, den vertragsmäßigen Gebrauch nicht oder nur unwesentlich einschränken und das Vorhandensein der Eigenschaft nicht von uns garantiert oder zugesichert wurde oder für uns erkennbar war, dass die vereinbarte Eigenschaft für den Kunden von besonderer Bedeutung ist, insbesondere wenn durch die Abweichung von ihr der Vertragszweck gefährdet würde.

III. Preisangaben, Preise, Zuschläge, Zahlungsbedingungen, Verzug

1. Mit uns vereinbarte Preise sowie unsere Katalogpreise verstehen sich bei Inlandslieferungen netto frei Haus, d.h. einschließlich Anlieferung und Verpackung und sind zahlbar ohne Abzug. Bei Mindermengen, Gefahrgut und Kühltendungen erheben wir grundsätzlich zum vereinbarten Preis einen Zuschlag.
2. Unsere Preisangaben sind nur verbindlich nach Maßgabe der nachstehenden Ziff. 3.
3. Bei einer vereinbarten Liefer- oder Leistungszeit von mehr als drei Monaten sind wir berechtigt, die Preise entsprechend in der Zeit zwischen Vertragsschluss und Lieferung eingetretener Preissteigerungen auf unseren Beschaffungsmärkten zu erhöhen und verpflichtet, entsprechend in dieser Zeit eingetretener Preisniedrigungen zu senken. Wir sind – unabhängig von der vereinbarten Lieferzeit – berechtigt und verpflichtet, den Preis unserer Leistungen dem Marktpreis entsprechend anzupassen, sofern dieser sich zwischen Vertragsschluss und Leistung bzw. Lieferung um mehr als 4,5% geändert hat.
4. Dauert der Verzug des Kunden länger als 30 Kalendertage, lässt er Wechsel oder Schecks zu Protest gehen oder wird Antrag auf Eröffnung des Insolvenzverfahrens über sein Vermögen gestellt, sind wir berechtigt, sämtliche Forderungen gegen den Kunden sofort fällig zu stellen, sämtliche Lieferungen und Leistungen zurückzuhalten und sämtliche Rechte aus Eigentums- und/oder Nutzungsrecht vorbehalten geltend zu machen.
5. Der Kunde kann nur mit unbestrittenen oder rechtskräftig festgestellten Forderungen aufrechnen oder ein Zurückbehaltungsrecht geltend machen.

IV. Lieferung, Liefertermin, Lieferverzug

1. Vereinbarte Liefertermine gelten als eingehalten, wenn die Ware zum vereinbarten Liefertermin dem Transportunternehmen übergeben wurde. Wir melden dem Kunden auf Wunsch die Versandbereitschaft der Ware.
2. Der Liefertermin wird nach unserem voraussichtlichen Leistungsvermögen vereinbart und versteht sich vorbehaltlich von uns nicht zu vertretenden Umständen und Ereignissen, die bei Vertragsschluss nicht gegeben waren oder uns weder bekannt waren noch bekannt sein mussten, unabhängig davon, ob diese Umstände oder Ereignisse bei uns oder beim Hersteller eintreten. Derartige Ereignisse verlängern den Liefertermin entsprechend, und zwar auch dann, wenn sie während eines bereits eingetretenen Verzuges auftreten. Verlängert wird auch eine in diesem Falle evtl. vom Kunden gesetzte Frist um die Dauer des unvorhergesehenen Ereignisses.
3. Sollten wir mit einer Lieferung mehr als 8 Wochen in Verzug geraten, kann der Kunde nach einer schriftlich gesetzten, angemessenen Frist zur Leistung vom Vertrag zurücktreten. In die Berechnung der Verzugsdauer sind die von uns nicht zu vertretenden Lieferverzögerungen i.S.d. Ziff. IV. 2 nicht mit einzuberechnen.
4. Wir behalten uns das Recht vor, vom Vertrag zurückzutreten, wenn eine von uns nicht zu vertretende Lieferverzögerung i.S.d. Ziff. IV. 2 länger als 8 Wochen andauert.
5. Wir sind zu Teillieferungen in zumutbarem Umfang berechtigt, sollte auf unseren Beschaffungsmärkten ein Beschaffungsengpass bestehen.

V. Eigentumsvorbehalt

1. Die Ware bleibt unser Eigentum bis zur Bezahlung sämtlicher, auch künftig entstehender Forderungen gegen den Kunden, gleich aus welchem Rechtsgrund (auch Wechsel, Scheck, Abtretung, Bürgschaft, Schadenersatz u. a.). Hierzu gehören auch bedingte Forderungen.
2. Der Kunde darf Vorbehaltsware im ordnungsgemäßen Geschäftsbetrieb, und zwar gegen Barzahlung oder unter Eigentumsvorbehalt, veräußern; zu anderen Verfügungen, insbesondere zur Sicherheitsüberweisung und zur Verpfändung, ist er nicht berechtigt.
3. Der Kunde tritt zur Sicherung unserer Ansprüche – gleich aus welchem Rechtsgrund (vergl. Ziff. V.1.) – schon jetzt von seinen Forderungen aus Lieferungen, in denen unsere Vorbehaltsware enthalten ist, jeweils den Betrag mit allen Nebenrechten an uns ab, der unserem Rechnungspreis einschließlich Umsatzsteuer für die enthaltene Vorbehaltsware entspricht.
4. Übersteigt der Wert der Gesamtheit der uns zustehenden Sicherheiten die Höhe der Gesamtheit unserer Forderungen um mehr als 30 %, werden wir Sicherheiten nach unserer Wahl auf Verlangen des Kunden freigeben. Fällt die Umsatzsteuer gemäß §§ 170 Abs. 2, 171 Abs. 2, 3 InsO bei uns an, erhöht sich diese Grenze auf 40 %.
5. Der Kunde hat uns den Zugriff Dritter auf die Vorbehaltsware oder die uns abgetretenen Forderungen sofort schriftlich mitzuteilen und uns in jeder Weise bei der Intervention zu unterstützen. Die Kosten hierzu trägt der Kunde, wenn die Intervention erfolgreich war, jedoch beim Beklagten als Kostenschuldner die Zwangsvollstreckung vergeblich versucht wurde.
6. Wird die von uns gelieferte Vorbehaltsware mit einer anderen beweglichen Sache derart verbunden, dass beide wesentlicher Bestandteil einer einheitlichen Sache werden, so ist der Kunde verpflichtet uns anteilig im Verhältnis des Rechnungswertes der Vorbehaltsware zu dem der anderen Sache Miteigentum an der neuen Sache zu verschaffen.

VI. Gefahrübergang, Versicherung

1. Die Gefahr geht mit Übergabe an die Transportperson, deren Beauftragten oder andere Personen, die von uns benannt sind, auf den Kunden über, es sei denn dass die Ware mit eigenen Leuten oder eigenen Fahrzeugen zum Kunden gebracht wird. Soweit sich der Versand ohne Verschulden von uns verzögert oder unmöglich wird, geht die Gefahr mit Meldung der Versandbereitschaft auf den Kunden über. Diese Gefahrübergangsbestimmungen gelten auch bei Rücksendungen nach Mängelbeseitigung, entgeltlicher Serviceleistung oder Ersatzlieferung an den Kunden.
2. Auf Verlangen des Kunden wird die Sendung auf seine Kosten gegen die von ihm bezeichneten Risiken – soweit mit für uns mit zumutbarem Aufwand möglich – versichert.

VII. Wichtige Hinweise zu unseren Produkten!

1. **Lagerung:** Bei sämtlichen Substanzen geben wir Lagertemperaturen an, die wir für mehrmonatige Lagerung vorschlagen. Da auch solche Substanzen nach unserer Erfahrung einen mehrtägigen Transport in der Regel ohne Qualitätsverlust überstehen, liefern wir sie nur auf besonderen Wunsch und gegen Aufpreis als Kühltendung aus.
2. **Kühltendung:** Besonders empfindliche Präparate werden als Kühltendung gegen Zuschlag verschickt.
3. **Beschränkte Produktverwendung:** Von SERVA gelieferte Produkte sind ausschließlich für Forschungs- und sonstige Laboratoriumszwecke bestimmt. Sie dürfen nur unter Aufsicht hierfür fachlich qualifizierter Personen verwendet werden. SERVA ist berechtigt, vom Kunden eine schriftliche Bestätigung zu verlangen, dass das betreffende Produkt für nicht erlaubte Anwendungen weder bezogen noch weiterveräußert wird.
4. **Gifte:** Giftige Stoffe werden nur aufgrund schriftlicher Bestellung an technische Gewerbebetriebe, Wiederverkäufer, öffentliche Forschungs-, Untersuchungs- oder Lehranstalten geliefert. Die Bestellung muss von einer zur Vertretung berechtigten Person handschriftlich unterzeichnet sein und den vollen Namen dieser Person ersichtlich machen. Die Weitergabe giftiger Stoffe an Privatpersonen ist unzulässig; giftige Stoffe dürfen nur von geschultem Personal unter Beachtung entsprechender Sicherheitsvorkehrungen gehandhabt werden.
5. **Sicherheitsdatenblatt:** Auf Anforderung übersendet SERVA kostenlos zu jedem Produkt ein Sicherheitsdatenblatt.

VIII. Mängel, Verjährung

1. Der Kunde hat er die Lieferung/Leistung unverzüglich – soweit zumutbar – zu untersuchen und erkennbare Mängel unverzüglich schriftlich und – soweit zumutbar – substantiiert geltend zu machen.
2. Bei Mängeln sind wir entgegen § 439 Abs. 1 BGB nach unserer Wahl zur Mängelbeseitigung oder Ersatzlieferung berechtigt.
3. An Stelle der gemäß § 438 Abs. 1 Nr. 3 BGB geltenden Verjährungsfrist, gilt eine solche von nur einem Jahr.
4. Weitergehende Ansprüche des Kunden wegen Mängeln der Ware sind nach Maßgabe von Ziffer IX ausgeschlossen.

IX. Haftungsbeschränkung

1. Wir haften dem Kunden aus gesetzlichen oder vertraglichen Haftungstatbeständen nur, wenn uns Vorsatz oder grobe Fahrlässigkeit zur Last gelegt werden kann.
2. Die Haftungsbegrenzung nach Ziff. IX Nr. 1. gilt jedoch nicht bei Verletzung von Leben, Körper oder Gesundheit oder Schäden aus der schuldhaften Verletzung von wesentlichen Vertragspflichten („Kardinalspflichten“) oder wenn der andere aufgrund eines besonderen Vertrauensverhältnisses auf die ordnungsgemäße Pflichterfüllung vertraut.
3. Be ruht die Haftung nicht auf Pflichtverletzungen von unseren Organen oder leiten den Angestellten, ist unsere Haftung auf den Ersatz des unmittelbaren Schadens unter Ausschluss einer Haftung für Folgeschäden, insbesondere entgangenen Gewinn, begrenzt. Ferner ist unsere Haftung auf von uns vorhersehbare typische Schäden begrenzt; insoweit haften wir bis zu einem Höchstbetrag von 50.000,-- €. Diese Beschränkungen gelten nicht, wenn unsere Haftung auf Vorsatz beruht. Soweit wir nicht selbst haften, werden dem Kunden auf Verlangen die Ansprüche abgetreten, die uns gegenüber Dritten zustehen.
4. Unsere Haftung aus einem von uns übernommenen Beschaffungsrisiko, von uns abgegebene Garantien, Zusicherungen oder arglistigem Verschweigen von Mängeln in Bezug auf die gelieferte Ware und Ansprüche aus Produkt-, Gefährdungs- oder Zufallschaftung bleibt unberührt.

X. Gültigkeitsbestimmung

Wenn einzelne Bestimmungen dieser AGB unwirksam sind oder werden, bleibt die Gültigkeit der übrigen davon unberührt. An Stelle der unwirksamen ist eine wirksame Bestimmung zu vereinbaren, die dem beabsichtigen Zweck der unwirksamen Bestimmung am nächsten kommt.

XI. Erfüllungsort, Gerichtsstand

Erfüllungsort für unsere vertraglichen Pflichten und Gerichtsstand für sämtliche Streitigkeiten aus dem Vertrag ist Heidelberg. Wir dürfen den Kunden auch an seinem Sitz oder gewöhnlichen Aufenthalt verklagen.

XII. Anwendbares Recht

Es gilt das Recht Deutschlands.

Stand: 29.07.2009 pe

I. Scope and Incorporation

1. Our Terms and Conditions of Sale and Supply (TCS&S) apply exclusively. Deviating Conditions of Purchase of the customer shall not be effective unless we expressly accept them in writing or by Email with qualified electronic signature. After formation of contract, deviating Conditions of Purchase may be integrated formlessly.
2. Our TCS&S shall only apply towards customers that are businesses in the sense of section 14 of the German Civil Code, or public law entities (comprising such not having the status of a legal person).
3. Our TCS&S apply on all future relations between the parties, even if not agreed upon expressly.

II. Commitment of Offers, Specifications, Deviations from Specifications

1. We reserve the right to revoke our offers until their acceptance unless we designate them as binding.
2. Product characteristics mentioned on our website, applicable catalogues or similar materials are not binding, unless such characteristics were agreed upon with the customer or the customer relies on them legitimately due to public utterance.
3. Deviations from product characteristics agreed upon shall be deemed according to the contract if the deviation reasonably has to be accepted by the customer, or does not or not substantially reduce the suitability of the product for the contractually presupposed use, unless we represented the missing characteristic or could realize that it was of major importance for the customer, or its absence endangers the sense of the agreement.

III. Prices, Payment

1. All prices are net prices, computed in EURO, exclusive value-added tax (VAT). For domestic deliveries we do not charge packaging, transportation, or other incidental costs.
2. Our prices are binding according to below standing para. III. 3.
3. If lead times agreed upon are more than 3 months, we may increase or have to reduce the prices agreed upon in the scope of market prices, if, after formation of the contract our costs increase or decrease, especially due to changes of cost of materials. Irrespective of the lead time agreed upon, we may have to adapt our price to the market price, if such has changed more than 4.5% between the date of contract formation and the delivery date agreed upon.
4. If customer's default with a payment lasts longer than 30 calendar days, cheques or bills of exchange of the customer are protested, or an insolvency petition is filed against customer, we shall be entitled to set due and payable the whole of the price of all goods bought or agreed to be bought by the customer, to retain all deliveries and services, and to demand return of the reserved goods or to collect them from third party areas and take possession of them.
5. The customer shall not be entitled to any right of retention or refusal or offset of his counterclaims against our claims unless the counterclaims the customer exercises retention or refusal for or sets off against our claims are uncontested or res judicata.

IV. Delivery, Delivery Date, Default of Delivery

1. Deadlines for deliveries shall be deemed to have been met when the goods are handed over to the forwarding agent. At the customer's request, we shall notify the customer of the readiness for shipment.
2. Deadlines for deliveries are agreed upon on the basis of our expected ability to perform and are subject to all facts, events and circumstances not attributable to us and not given at the time of the formation of contract. Such circumstances are especially force majeure, and other unforeseeable events. Such circumstances lead to an extension of the delivery date, even if occurring during our default with delivery. In such case also an additional period of time, fixed by the customer, is extended by the duration of such circumstances.
3. If we are in default of delivery for more than eight weeks, customer may rescind the contract after fruitless expiration of a reasonable additional period of time fixed by customer. Periods of default are computed regardless of circumstances not attributable to us, such as mentioned in para. IV. 2.
4. We reserve the right to rescind the contract in cases of a delay in the delivery not attributable to us, such as mentioned in para. IV. 2., lasting more than eight weeks.
5. Partial deliveries and services shall be acceptable provided that we have a (i) justified interest in these, included but not limited to cases of bottlenecks in our supply markets, and (ii) these are acceptable to the customer.

V. Retention of Title

1. We retain the title in any items delivered by us prior to the receipt of all payments due from customer's business transactions with us, e.g. the purchase price including any subsidiary claims, all charges due on the redemption and/or clearance of drafts, bills of exchange, and/or cheques accepted in payment. Claims subject to a condition precedent are included.
2. Until payment in full of the purchase price, customer shall not pledge the goods, assign or transfer them as security, or otherwise charge them with the rights of any third party, but may sell them in the ordinary course of business. The customer shall make the passing of title of the resold goods subject to their full payment.
3. The customer agrees to assign at this point in time any of its claims, including any claims based on credit insurance policies resulting from the resale of any items subject to retention of title, including any associated rights, irrespective of whether the item subject to retention of title has been resold to one or several buyers. Should any accounts receivable assigned have been included in a current account, the agreed assignment shall also refer to any claims resulting from such current account.
4. The customer is entitled to collect the purchase prices from resold goods until further notice. If we set due and payable the whole of the price of all goods bought or agreed to be bought by the customer pursuant to para. III. 4., customer is obliged to inform its buyers from the assignment pursuant to para V. 3, to provide us all necessary information, present all relevant documents, resp. make available to us its bookkeeping for information purposes.
5. If the value of the security provided to us exceeds the value of the claims to be safeguarded by more than 30 per cent, we shall, at the customer's request, bring the excess coverage down to 30 per cent by releasing security of our own choice.
6. We shall be notified without undue delay of any third-party seizure or other event affecting our property and customer has to give us reasonable support with our intervention. Customer has to bear the cost of such intervention having been successful but the costs not being recoverable from the defendant and compulsory execution against the defendant being fruitless.
7. Customer has no right of retention concerning any security.
8. If the law in customer's country does not recognize retention of title, we shall be entitled to assert and claim all other available property rights in its products.

VI. Passing of Risk, Insurance

1. The risk of loss and/or damage to goods supplied by us shall pass to the Customer when they are handed over to the transport person, the transport person's mandatory or other person we authorized, unless we deliver the goods with our own employees or vehicles to the customer. Should shipment be delayed due to circumstances beyond our control, the risk shall pass to the customer upon notification of readiness for shipment. These provisions about passing of risk also apply on returns after correction of faults, repair works at customer's cost, and replacement delivery.
2. On request of the customer and at its cost, we will insure the goods delivered against the risks notified to us by the customer.

VII. Important Information about our Products

1. **Storage:** We recommend temperatures that enable the goods to be stored for several months. As experience has shown, such goods can be transported over several days without loss of quality. Thus, we will only ship such goods as refrigerated shipments on special request of purchaser and at an additional charge.
2. **Refrigerated Shipments:** Particularly unstable items will be shipped in insulated packaging as refrigerated cargo at an additional charge.
3. **Limited Usage:** Products supplied by us are for laboratory and research use only. All our products may only be used within the confines of a laboratory and under the supervision of a qualified technical person. At our own discretion we may request the purchaser to provide us with written confirmation that the goods purchased are not to be used for applications other than *in vitro* or research use or are resold only for such purposes and may not be passed on to private individuals.
4. **Poisons:** Toxic substances are only shipped on the basis of written purchase orders. The name of the individual responsible for purchasing must be clearly visible on the order. Toxic substances may not be passed on to private individuals; toxic substances may only be used by qualified personnel in accordance with all necessary safety regulations.
5. **Safety Data Sheet:** On customer's request we will send customer a safety data sheet about each product.

VIII. Warranty

1. Customer has, without undue delay, to examine the goods and notify us in writing of any recognizable defects and shall, as far as possible with reasonable efforts, specify the defects found.
2. In case of warranty, we may, at our discretion, repair or replace the delivered goods. The exercise of this right of choice does not affect the customer's right to either reduce the purchase price or to withdraw from the contract (rescission of contract) if our efforts to repair or replace fails.
3. The limitation period in cases of deliveries were Section 438 para 2 No. 3 of the German Civil Code (about limitation period) is applicable is limited to only one year.
4. Any further claims because of defects of the delivered goods shall be excluded unless otherwise provided for under the following section IX.

IX. Limited Liability

1. We shall be liable for customer's damage, irrespective of the legal grounds therefore, including but not limited to, (i) liability under tort, (ii) breach of contractual duties (Verletzung vertraglicher Pflichten), and (iii) breach of duties upon contracting (Verschulden beim Vertragsschluss), only if such claims are based either on intent (Vorsatz) or gross negligence (grobe Fahrlässigkeit), except as otherwise provided in the following para. IX. 2.
2. Not included under the limitation of liability pursuant to above para. IX. 1. are (i) claims for damages because of personal injuries, (ii) damages due to breach of material contractual obligations („cardinal obligations“), and (iii) if customer relies on the due performance of our obligations due to reasons, creating a specific bond of trust recognized by law (besonderer Vertrauensabstand).
3. If our liability is not based on claims for damages that have been caused by us or our executive organs or managers, we are not liable for consequential damages, including, but not limited to lost profit. In any case of our liability, such liability is limited to the amount of the foreseeable damage typical to such contracts; additionally, our liability is limited to 50.000,- € (in words: fifty thousand and 00/100 Euros). These restrictions to our liability do not apply when such liability is based on intent. If we are not liable, and insofar hold claims against third persons, we will, on customer's request, assign our claims against such third persons to customer.
4. Not included under the limitation of liability pursuant to this section IX. are claims (i) under the Product Liability Act (Produkthaftungsgesetz) and (ii) any other mandatory statutory liability regulations as well as claims because of (iii) misrepresentation or (iv) lack of assured characteristics or (v) our assumption of the risk of procurement (Übernahme des Beschaffungsrisikos) of the sold product.

X. Severability

1. The invalidity or non-enforceability of any part of the present General Conditions of Sale and Supply and of any contract between the parties which refers thereto shall not affect the validity of the remaining terms and conditions thereof. Invalid or non-enforceable provisions have to be replaced by such provisions, which - within the legally admissible - come economically as close as possible to the effect desired by the parties. The same applies to eventual flaws or loopholes.

XI. Interpretation of Terms of Trade

1. Customary terms of trade shall be interpreted in accordance with the INCOTERMS current at the time.

XII. About SERVA

1. SERVA is a limited liability company registered in the commercial register of the Local Court of Heidelberg und HRB No. 336136, duly incorporated for an unlimited duration, and validly existing under the laws of Germany.
2. Our registered offices are at Carl-Benz-Strasse 7, D 69115 Heidelberg, Germany. This address shall be used for all notices.
3. Our taxpayer's identification number for value-added tax (Umsatzsteueridentnummer) is DE 812517285.

State: 26.08.2013 pe

**The following company trademarks
have been used in this catalog:**

Actidione	Upjohn
Adogen	Ashland Chemical Co.
Aliquat	Cognis Corp.
Araldite	Huntsman Advanced Materials Europe
Avicel	FMC, Brussels
Brij	ICI America Inc.
Carbopol	B.F. Goodrich Chemical Co.
Celite	Manville Corp.
Cibacron Blue	Ciba-Geigy
Colcemid	Ciba-Geigy
Cohn Analog	Proliant Biologicals, USA
Coomassie	ICI Ltd.
Cyanase	RiboSolutions
D.E.R.	Dow Chemical Company
Detergent 7X	MP Biomedicals (ICN Pharmaceuticals Inc.)
DOWEX	Dow Chemical Company
Ferrozine	Diagnostic Chemicals, Canada
Ficoll	GE Healthcare
Float-A-Lyzer	Spectrum Medical Industries
Fluram	Hoffmann La Roche
Funcelase	Yakult Honsha Co., Japan
Gelrite	Merck & Co., Inc. , USA
Geneticin	L T I
ICPL	TopLab GmbH, Martinsried, Germany
Immobilon	Millipore
MEMBRA-CEL	Viskase Corp./USA
<i>micro</i> Float-A-Lyzer	Spectrum Medical Industries
Montanox	Seppic, France
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Nycodenz	Axis-Shield, Norway
Nycoprep	Axis-Shield, Norway
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Pronase	Calbiochem-Novabiochem Corp.
Renlam	Huntsman Advanced Materials Europe
SERA-MAG	Seradyn USA
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Synperonic	ICI Ltd.
Triton	Union Carbide Corporation
Trasylol	Bayer AG
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BlueBlot
BlueFlash
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BlueLine
BlueMarine
BluePower
BlueSlick
BlueVertical
GEL-FIX
HPE
Merbital
Net-Fix
PRECOTES
PreNets
PRIME
SERDOLIT
SERVA
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SERVAGel
SERVALYT
SERVAPOR

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