

Product code	Description
43394	SERVA CSF Silver Staining Kit

Components:

43807	Formaldehyde 37 % solution in water
43808	Glutaraldehyde 25 % solution in water
43809	Solution A for Silver Staining Kit
43810	Solution B for Silver Staining Kit
43811	Solution C for Silver Staining Kit
43812	Solution D for Silver Staining Kit
43813	Solution E for Silver Staining Kit

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 07.12.2011

1 Identification of the substance/mixture and of the company/undertaking

- 1.1. Product identifier
- Trade name: Formaldehyde 37 % solution in water
- Article number: 43807
- 1.2. Relevant identified uses of the substance or mixture and uses advised against
- Application of the substance / the preparation Laboratory chemicals
- 1.3. Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- Information department: Product Safety department Tel.: +49 6221 13840-35
- 1.4. Emergency telephone number: +49 6131 19240 (university hospital Mainz)

SERVA
Electrophoresis

2 Hazards identification

- 2.1. Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008



GHS02

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS06

Acute Tox. 3 H301 Toxic if swallowed.
Acute Tox. 3 H311 Toxic in contact with skin.
Acute Tox. 3 H331 Toxic if inhaled.



GHS08

Carc. 2 H351 Suspected of causing cancer.
STOT SE 1 H370 Causes damage to organs.



GHS05

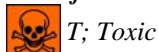
Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R23/24/25-39: Toxic by inhalation, in contact with skin and if swallowed. Danger of very serious irreversible effects.

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 **Xn; Harmful**

R40-68/20/21/22: *Limited evidence of a carcinogenic effect. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.*

 **Xi; Irritant**

R36/37/38: *Irritating to eyes, respiratory system and skin.*

 **Xi; Sensitising**

R43: *May cause sensitisation by skin contact.*

· **Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· **Classification system:**

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

· **2.2. Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms** GHS02, GHS05, GHS06, GHS08

· **Signal word** Danger

· **Hazard-determining components of labelling:**

formaldehyde

methanol

· **Hazard statements**

H226 Flammable liquid and vapour.

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H370 Causes damage to organs.

· **Precautionary statements**

P201 Obtain special instructions before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P281 Use personal protective equipment as required.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

P330 Rinse mouth.

· **2.3. Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

· **3.2. Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with harmless additions.

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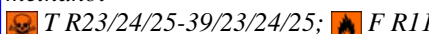
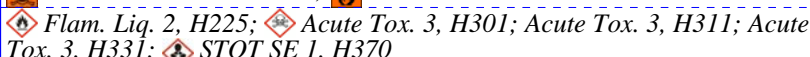
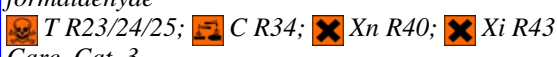
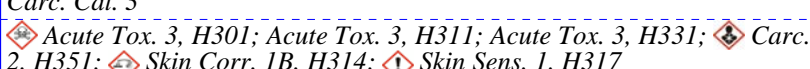
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Trade name: Formaldehyde 37 % solution in water

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· Dangerous components:

CAS: 67-56-1 EINECS: 200-659-6	methanol  	15-30%
CAS: 50-00-0 EINECS: 200-001-8	formaldehyde  Carc. Cat. 3 	15-30%

· **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **4.1. Description of first aid measures**
- **After inhalation** Supply fresh air or oxygen; call for doctor.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.
- **After swallowing** Drink copious amounts of water and provide fresh air. Call for doctor immediately.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Dilute with plenty of water.
- **6.3. Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4. Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

- **Handling**

- **7.1. Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

- **Information about protection against explosions and fires:**

Protect from heat.

Protect against electrostatic charges.

- **7.2. Conditions for safe storage, including any incompatibilities**

- **Storage**

· **Requirements to be met by storerooms and receptacles:** No special requirements.

· **Information about storage in one common storage facility:** Store away from oxidizing agents.

· **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.

· **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

- **8.1. Control parameters**

· **Components with limit values that require monitoring at the workplace:**

50-00-0 formaldehyde (15-30%)

WEL	Short-term value: 2.5 mg/m ³ , 2 ppm
	Long-term value: 2.5 mg/m ³ , 2 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

- **8.2. Exposure controls**

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

Short term filter device:

Filter P3.

- **Protection of hands:**

Protective gloves.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Chloroprene rubber, CR
Butyl rubber, BR
- **Eye protection:** Tightly sealed goggles.
- **Body protection:** Protective work clothing.

9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Liquid
· Colour:	Colourless
· Odour:	Pungent
· Odour threshold:	Not determined.

· **pH-value:** Not determined.

· Change in condition

· Melting point/Melting range:	undetermined
· Boiling point/Boiling range:	100°C

· **Flash point:** 56°C

· **Flammability (solid, gaseous)** Not applicable.

· Ignition temperature:

· **Decomposition temperature:** Not determined.

· **Self igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· Explosion limits:

· Lower:	7 Vol %
· Upper:	70 Vol %

· **Vapour pressure at 39°C:** 53 hPa

· Density:	Not determined
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.

· Solubility in / Miscibility with

· **Water:** Fully miscible

· **Segregation coefficient (n-octanol/water):** Not determined.

· Viscosity:

· dynamic:	Not determined.
· kinematic:	Not determined.

· Solvent content:

· Organic solvents:

· VOC %:	27.39 %
· VOC g/l:	340.7 g/l

· **9.2. Other information** There are no more data available.

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10 Stability and reactivity

- **10.1. Reactivity** No further relevant informations available
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions** Danger of polymerisation
- **10.4. Conditions to avoid** Ignition sources
- **10.5. Incompatible materials:** Avoid contact with: strong oxidizers, strong acids, strong alkali
- **10.6. Hazardous decomposition products:** No dangerous decomposition products known
- **Additional information:** Contains as a stabilizer Methanol ($\geq 8\%$ - $< 15\%$).

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

67-56-1 methanol

Oral	LD50	13000 mg/kg (rat)
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50-00-0 formaldehyde

Oral	LD50	>200 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **12.1. Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** No further relevant information available.
- **12.4. Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.
Do not allow product to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6. Other adverse effects** No further relevant information available.

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13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

· 14.1. UN-Number · ADR, IMDG, IATA	UN1198
· 14.2. UN proper shipping name · ADR · IMDG · IATA	1198 FORMALDEHYDE SOLUTION, FLAMMABLE FORMALDEHYDE SOLUTION, FLAMMABLE Formaldehyde solution, flammable
· 14.3. Transport hazard class(es) · ADR	
	
· Class · Label	3 Flammable liquids. 3+8
· IMDG, IATA	
	
· Class · Label	3 Flammable liquids. 3+8
· 14.4. Packing group · ADR, IMDG, IATA	III
· 14.5. Environmental hazards: · Marine pollutant:	No
· 14.6. Special precautions for user · Danger code (Kemler): · EMS Number:	Warning: Flammable liquids. 38 F-A,S-B
· 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR · Tunnel restriction code	D/E
· UN "Model Regulation":	UN1198, FORMALDEHYDE SOLUTION, FLAMMABLE, 3 (8), III

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Trade name: Formaldehyde 37 % solution in water

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15 Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
Wasser	15-30
I	15-30
III	15-30

· **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H331 Toxic if inhaled.

H351 Suspected of causing cancer.

H370 Causes damage to organs.

R11 Highly flammable.

R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R34 Causes burns.

R39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

R40 Limited evidence of a carcinogenic effect.

R43 May cause sensitisation by skin contact.

· **Department issuing MSDS:** Product safety department

· **Contact:** +49 6221 13840-35

· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· *** Data compared to the previous version altered.**

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Version number 1

Revision: 20.12.2011

1 Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

· Trade name: Glutaraldehyde 25 % solution in water

· Article number: 43808

· 1.2. Relevant identified uses of the substance or mixture and uses advised against

· Application of the substance / the preparation Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

SERVA Electrophoresis GmbH

Carl-Benz-Str. 7

D-69115 Heidelberg

Tel.: +49 6221 13840-0

FAX: +49 6221 13840-10

msds.info@serva.de

· Information department: Product Safety department Tel.: +49 6221 13840-35

· 1.4. Emergency telephone number: +49 6131 19240 (university hospital Mainz)

SERVA
Electrophoresis

2 Hazards identification

2.1. Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



GHS06

Acute Tox. 3 H331 Toxic if inhaled.



GHS08

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS05

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS09

Aquatic Acute 1 H400 Very toxic to aquatic life.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

· Classification according to Directive 67/548/EEC or Directive 1999/45/EC



T; Toxic

R23: Toxic by inhalation.



C; Corrosive

R34: Causes burns.

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Trade name: **Glutaraldehyde 25 % solution in water**

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**Xn; Harmful**

R22: Harmful if swallowed.

**Xn; Sensitising**

R42/43: May cause sensitisation by inhalation and skin contact.

**Xi; Irritant**

R37: Irritating to respiratory system.

**N; Dangerous for the environment**

R50: Very toxic to aquatic organisms.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

2.2. Label elements**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

Hazard pictograms GHS05, GHS06, GHS08, GHS09**Signal word Danger****Hazard-determining components of labelling:**

glutaral

Hazard statements

H302 Harmful if swallowed.

H331 Toxic if inhaled.

H314 Causes severe skin burns and eye damage.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

Precautionary statements

P273 Avoid release to the environment.

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

P330 Rinse mouth.

2.3. Other hazards**Results of PBT and vPvB assessment****PBT:** PBT - assessment not available.**vPvB:** vPvB - assessment not available.**3 Composition/information on ingredients****3.2. Chemical characterization: Mixtures****Description:** Mixture of the substances listed below with harmless additions.

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Trade name: **Glutaraldehyde 25 % solution in water**




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

· Dangerous components:CAS: 111-30-8
EINECS: 203-856-5

glutaral

15-30%

 T R23/25;
  C R34;
  Xn R42/43;
  N R50

 Acute Tox. 3, H301;
  Acute Tox. 3, H331;
  Resp. Sens. 1, H334;

 Skin Corr. 1B, H314;
  Aquatic Acute 1, H400;
  Skin Sens. 1, H317

· **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures· **4.1. Description of first aid measures**· **General information**

Remove contaminated clothing.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation** Supply fresh air and to be sure call for a doctor.· **After skin contact** Immediately rinse with water.· **After eye contact**

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.

· **After swallowing** Drink copious amounts of water and provide fresh air. Call for doctor immediately.· **Information for doctor**· **4.2. Most important symptoms and effects, both acute and delayed**

No further relevant information available.

· **4.3. Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures· **5.1. Extinguishing media**· **Suitable extinguishing agents**CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.· **5.3. Advice for firefighters**· **Protective equipment:** Wear self-contained respiratory protective device.· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures· **6.1. Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

· **6.2. Environmental precautions:**

Do not allow to enter sewers/ surface or ground water.

Dilute with plenty of water.

· **6.3. Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **6.4. Reference to other sections**

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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Trade name: *Glutaraldehyde 25 % solution in water*

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7 Handling and storage

- **Handling**

- **7.1. Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

- **Information about protection against explosions and fires:** Keep respiratory protective device available.

- **7.2. Conditions for safe storage, including any incompatibilities**

- **Storage**

- **Requirements to be met by storerooms and receptacles:** Store at +2 to +8 °C

- **Information about storage in one common storage facility:**

Store away from flammable substances.

Store away from oxidizing agents.

- **Further information about storage conditions:**

Store under lock and key and with access restricted to technical experts or their assistants only.

Keep receptacle tightly sealed.

- **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **8.1. Control parameters**

- **Components with limit values that require monitoring at the workplace:**

111-30-8 glutaral (15-30%)

WEL	Short-term value: 0.2 mg/m ³ , 0.05 ppm
	Long-term value: 0.2 mg/m ³ , 0.05 ppm
Sen	

- **Additional information:** The lists that were valid during the creation were used as basis.

- **8.2. Exposure controls**

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

Short term filter device:

Filter P3.

- **Protection of hands:**

Neoprene gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

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Trade name: Glutaraldehyde 25 % solution in water

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- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Natural rubber, NR
Nitrile rubber, NBR
- **Eye protection:** Tightly sealed goggles.
- **Body protection:** Protective work clothing.

9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Fluid
· Colour:	Colourless
· Odour:	Unpleasant

· **pH-value at 20°C:** 3.5

· Change in condition

· **Melting point/Melting range:** undetermined
· **Boiling point/Boiling range:** > 100°C

· **Flash point:** Not applicable

· **Self igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density at 20°C:** 1.06 g/cm³

· Solubility in / Miscibility with

· **Water:** Fully miscible

· Solvent content:

· Organic solvents:	0.0 %
· VOC %:	0.00 %
· 9.2. Other information	There are no more data available.

10 Stability and reactivity

- **10.1. Reactivity** No further relevant informations available
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions** Danger of polymerisation
- **10.4. Conditions to avoid** No further relevant information available.
- **10.5. Incompatible materials:** No further relevant information available.
- **10.6. Hazardous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

· 11.1. Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

111-30-8 glutaral

Oral	LD50	100 mg/kg (Maus)
		134 mg/kg (rat)

· Primary irritant effect:

· **on the skin:** Caustic effect on skin and mucous membranes.

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Safety data sheet
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Printing date 20.12.2011

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Trade name: Glutaraldehyde 25 % solution in water

(Contd. of page 5)

- **on the eye:** Strong caustic effect.
- **Sensitization:**
Sensitization possible through inhalation.
Sensitization possible through skin contact.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Toxic
Harmful
Corrosive
Irritant
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **12.1. Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** No further relevant information available.
- **12.4. Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach sewage water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|--|--|
| · 14.1. UN-Number | |
| · ADR, IMDG, IATA | UN2922 |
| · 14.2. UN proper shipping name | |
| · ADR | 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaral), ENVIRONMENTALLY HAZARDOUS |
| · IMDG | CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaral) |
| · IATA | Corrosive liquid, toxic, n.o.s. (Glutaral) |

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Trade name: *Glutaraldehyde 25 % solution in water*

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· 14.3. Transport hazard class(es)

· ADR



· Class 6.1 Toxic substances.
· Label 8+6.1

· IMDG



· Class 6.1 Toxic substances.
· Label 8+6.1

· IATA



· Class 6.1 Toxic substances.
· Label 8+6.1

· 14.4. Packing group

· ADR, IMDG, IATA II

· 14.5. Environmental hazards:

· Marine pollutant: Product contains environmentally hazardous substances:
glutaral
Symbol (fish and tree)
· Special marking (ADR): Symbol (fish and tree)

· 14.6. Special precautions for user

· Danger code (Kemler): Warning: Toxic substances.
86
· EMS Number: F-A,S-A

· 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

· Transport/Additional information:

· ADR

· Tunnel restriction code E

· UN "Model Regulation":

UN2922, CORROSIVE LIQUID, TOXIC, N.O.S.
(Glutaral), ENVIRONMENTALLY HAZARDOUS, 8 (6.1),
II

* **15 Regulatory information**

· 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

· National regulations

· Technical instructions (air):

Class	Share in %
I	15-30

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Trade name: Glutaraldehyde 25 % solution in water

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- **Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H331 Toxic if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H400 Very toxic to aquatic life.

R23/25 Toxic by inhalation and if swallowed.

R34 Causes burns.

R42/43 May cause sensitisation by inhalation and skin contact.

R50 Very toxic to aquatic organisms.

· **Department issuing MSDS:** Product safety department

· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· *** Data compared to the previous version altered.**

GB

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 02.12.2011

1 Identification of the substance/mixture and of the company/undertaking

- **1.1. Product identifier**
- **Trade name:** Solution A for Silver Staining Kit
- **Article number:** 43809
- **1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4. Emergency telephone number:** +49 6131 19240 (university hospital Mainz)

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2 Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC not applicable**
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
- **2.2. Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **2.3. Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

- **3.2. Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions.
- **Dangerous components:** Void
- **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **4.1. Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.

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Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 02.12.2011

Trade name: Solution A for Silver Staining Kit

(Contd. of page 1)

- **After skin contact** Immediately rinse with water.
- **After eye contact**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.
- **After swallowing** If symptoms persist consult doctor.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3. Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
- **6.4. Reference to other sections**
No dangerous substances are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1. Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

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Safety data sheet
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Printing date 20.12.2011

Version number 1

Revision: 02.12.2011

Trade name: Solution A for Silver Staining Kit

(Contd. of page 2)

- **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2. Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:** Suitable respiratory protective device recommended.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Natural rubber, NR
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

9 Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**

Form:	Solution
Colour:	Colourless
Odour:	Characteristic
Odour threshold:	Not determined.
- **pH-value:** Not determined.
- **Change in condition**

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined
- **Flash point:** Not applicable
- **Flammability (solid, gaseous)** Not applicable.
- **Ignition temperature:**
- **Decomposition temperature:** Not determined.
- **Self igniting:** Product is not selfigniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**

Lower:	Not determined.
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Trade name: Solution A for Silver Staining Kit

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Upper:	<i>Not determined.</i>
· Vapour pressure:	<i>Not determined.</i>
· Density:	<i>Not determined</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not determined.</i>
· Evaporation rate	<i>Not determined.</i>
· Solubility in / Miscibility with Water:	<i>Soluble</i>
· Segregation coefficient (n-octanol/water):	<i>Not determined.</i>
· Viscosity:	
dynamic:	<i>Not determined.</i>
kinematic:	<i>Not determined.</i>
· Solvent content:	
Organic solvents:	<i>0.0 %</i>
· VOC %:	<i>0.00 %</i>
· 9.2. Other information	<i>No further relevant information available.</i>

10 Stability and reactivity

- **10.1. Reactivity** *No further relevant informations available*
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **10.3. Possibility of hazardous reactions** *No dangerous reactions known*
- **10.4. Conditions to avoid** *No further relevant information available.*
- **10.5. Incompatible materials:** *No further relevant information available.*
- **10.6. Hazardous decomposition products:** *No dangerous decomposition products known*

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** *No irritant effect.*
- **on the eye:** *No irritating effect.*
- **Sensitization:** *No sensitizing effects known.*
- **Additional toxicological information:**
*The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.*

12 Ecological information

- **12.1. Toxicity**
- **Acquatic toxicity:** *No further relevant information available.*
- **12.2. Persistence and degradability** *No further relevant information available.*
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** *No further relevant information available.*
- **12.4. Mobility in soil** *No further relevant information available.*

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Version number 1

Revision: 02.12.2011

Trade name: Solution A for Silver Staining Kit

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- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| · 14.1. UN-Number
· ADR, IMDG, IATA | Void |
| · 14.2. UN proper shipping name
· ADR, IMDG, IATA | Void |
| · 14.3. Transport hazard class(es)
· ADR, IMDG, IATA
· Class
· Label | Void
- |
| · 14.4. Packing group
· ADR, IMDG, IATA | Void |
| · 14.5. Environmental hazards:
· Marine pollutant: | No |
| · 14.6. Special precautions for user | Not applicable. |
| · 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |

15 Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Product safety department

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Printing date 20.12.2011

Version number 1

Revision: 02.12.2011

Trade name: Solution A for Silver Staining Kit

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· **Contact:** +49 6221 13840-35

· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

· *** Data compared to the previous version altered.**

GB

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 07.12.2011

1 Identification of the substance/mixture and of the company/undertaking

- **1.1. Product identifier**
- **Trade name:** Solution B for Silver Staining Kit
- **Article number:** 43810
- **1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4. Emergency telephone number:** +49 6131 19240 (university hospital Mainz)



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2 Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The product is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC not applicable**
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
- **2.2. Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **2.3. Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

- **3.2. Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions.
- **Dangerous components:**

CAS: 64-17-5	ethanol	 F R11	5-15%
EINECS: 200-578-6		 Flam. Liq. 2, H225	

- **Additional information** For the wording of the listed risk phrases refer to section 16.

GB

(Contd. on page 2)

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 07.12.2011

Trade name: *Solution B for Silver Staining Kit*

(Contd. of page 1)

4 First aid measures

- **4.1. Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Immediately rinse with water.
- **After eye contact** Rinse opened eye for several minutes under running water.
- **After swallowing** If symptoms persist consult doctor.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Dilute with plenty of water.
- **6.3. Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
- **6.4. Reference to other sections**
No dangerous substances are released.
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3. Specific end use(s)** No further relevant information available.

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Safety data sheet
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Printing date 20.12.2011

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Revision: 07.12.2011

Trade name: Solution B for Silver Staining Kit

(Contd. of page 2)

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· 8.1. Control parameters

· **Components with limit values that require monitoring at the workplace:**

64-17-5 ethanol (5-15%)

WEL Long-term value: 1920 mg/m³, 1000 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· 8.2. Exposure controls

· Personal protective equipment

· General protective and hygienic measures

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:** Suitable respiratory protective device recommended.

· Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Natural rubber, NR

· **Eye protection:** Safety glasses

· **Body protection:** Protective work clothing.

9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Solution
Colour:	Colourless
· Odour:	Characteristic
· Odour threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined

· Flash point: Not applicable

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· Flammability (solid, gaseous)	<i>Not applicable.</i>
· Ignition temperature:	
Decomposition temperature:	<i>Not determined.</i>
· Self igniting:	<i>Product is not selfigniting.</i>
· Danger of explosion:	<i>Product does not present an explosion hazard.</i>
· Explosion limits:	
Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
· Vapour pressure:	<i>Not determined.</i>
· Density:	<i>Not determined</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not determined.</i>
· Evaporation rate	<i>Not determined.</i>
· Solubility in / Miscibility with Water:	<i>Fully miscible</i>
· Segregation coefficient (n-octanol/water):	<i>Not determined.</i>
· Viscosity:	
dynamic:	<i>Not determined.</i>
kinematic:	<i>Not determined.</i>
· Solvent content:	
Organic solvents:	<i>10.0 %</i>
· VOC %:	<i>10.00 %</i>
· VOC g/l:	<i>100.0 g/l</i>
· Solids content:	<i>0.7 %</i>
· 9.2. Other information	<i>No further relevant information available.</i>

10 Stability and reactivity

- **10.1. Reactivity** *No further relevant informations available*
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **10.3. Possibility of hazardous reactions** *No dangerous reactions known*
- **10.4. Conditions to avoid** *No further relevant information available.*
- **10.5. Incompatible materials:** *No further relevant information available.*
- **10.6. Hazardous decomposition products:** *No dangerous decomposition products known*

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** *No irritant effect.*
- **on the eye:** *No irritating effect.*
- **Sensitization:** *No sensitizing effects known.*
- **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

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When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

12 Ecological information

- **12.1. Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** No further relevant information available.
- **12.4. Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| · 14.1. UN-Number
· ADR, IMDG, IATA | Void |
| · 14.2. UN proper shipping name
· ADR, IMDG, IATA | Void |
| · 14.3. Transport hazard class(es)
· ADR, IMDG, IATA
· Class
· Label | Void
-
- |
| · 14.4. Packing group
· ADR, IMDG, IATA | Void |
| · 14.5. Environmental hazards:
· Marine pollutant: | No |
| · 14.6. Special precautions for user | Not applicable. |
| · 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |

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15 Regulatory information

· **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
NK	5-15

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

· **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H225 Highly flammable liquid and vapour.

R11 Highly flammable.

· **Department issuing MSDS:** Product safety department

· **Contact:** +49 6221 13840-35

· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

· *** Data compared to the previous version altered.**

-GB-

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1 Identification of the substance/mixture and of the company/undertaking

· 1.1. Product identifier

· Trade name: Solution C for Silver Staining Kit

· Article number: 43811

· 1.2. Relevant identified uses of the substance or mixture and uses advised against

· Application of the substance / the preparation Laboratory chemicals

· 1.3. Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

SERVA Electrophoresis GmbH

Carl-Benz-Str. 7

D-69115 Heidelberg

Tel.: +49 6221 13840-0

FAX: +49 6221 13840-10

msds.info@serva.de

· Information department: Product Safety department Tel.: +49 6221 13840-35

· 1.4. Emergency telephone number: +49 6131 19240 (university hospital Mainz)

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Electrophoresis

2 Hazards identification

· 2.1. Classification of the substance or mixture

· Classification according to Regulation (EC) No 1272/2008



GHS05

Skin Corr. 1B H314 Causes severe skin burns and eye damage.



GHS09

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

· Classification according to Directive 67/548/EEC or Directive 1999/45/EC



C; Corrosive

R34: Causes burns.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· Classification system:

The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

· 2.2. Label elements

· Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

· Hazard pictograms GHS05, GHS09

· Signal word Danger

· Hazard-determining components of labelling:

silver nitrate

· Hazard statements

H314 Causes severe skin burns and eye damage.

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H410 Very toxic to aquatic life with long lasting effects.

· **Precautionary statements**

P273 Avoid release to the environment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

· **2.3. Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

· **3.2. Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with harmless additions.

· **Dangerous components:**




CAS: 7761-88-8

silver nitrate

5-15%

EINECS: 231-853-9

 C R34;  N R50/53

 Ox. Sol. 2, H272;  Skin Corr. 1B, H314;  Aquatic Acute 1, H400; Aquatic Chronic 1, H410

· **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

· **4.1. Description of first aid measures**

· **After inhalation** Supply fresh air; consult doctor in case of complaints.

· **After skin contact** Immediately wash with water and soap and rinse thoroughly.

· **After eye contact**

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.

· **After swallowing** Drink copious amounts of water and provide fresh air. Call for doctor immediately.

· **Information for doctor**

· **4.2. Most important symptoms and effects, both acute and delayed**

No further relevant information available.

· **4.3. Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

5 Firefighting measures

· **5.1. Extinguishing media**

· **Suitable extinguishing agents**

CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **5.2. Special hazards arising from the substance or mixture** No further relevant information available.

· **5.3. Advice for firefighters**

· **Protective equipment:** Wear self-contained respiratory protective device.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

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6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3. Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
Dispose contaminated material as waste according to item 13.
- **6.4. Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1. Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2. Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Short term filter device:
Filter P3.
- **Protection of hands:**
Protective gloves.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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- **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Natural rubber, NR

Nitrile rubber, NBR

- **Eye protection:** Tightly sealed goggles.

- **Body protection:** Protective work clothing.

9 Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Solution
Colour:	Colourless
· Odour:	Odourless
· Odour threshold:	Not determined.

- **pH-value:** Not applicable.

- **Change in condition**

Melting point/Melting range:	undetermined
Boiling point/Boiling range:	undetermined

- **Flash point:** Not applicable

- **Flammability (solid, gaseous)** Not determined.

- **Ignition temperature:**

Decomposition temperature: Not determined.

- **Self igniting:** Product is not selfigniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**

Lower:	Not determined.
Upper:	Not determined.

- **Vapour pressure:** Not applicable.

· Density:	Not determined
· Relative density	Not determined.
· Vapour density	Not applicable.
· Evaporation rate	Not applicable.

- **Solubility in / Miscibility with**

Water: Soluble

- **Segregation coefficient (n-octanol/water):** Not determined.

- **Viscosity:**

dynamic: Not applicable.

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kinematic:	Not applicable.
· Solvent content:	
Organic solvents:	0.0 %
· VOC %:	0.00 %
· Solids content:	100.0 %
· 9.2. Other information	No further relevant information available.

10 Stability and reactivity

- **10.1. Reactivity** No further relevant informations available
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions** No dangerous reactions known
- **10.4. Conditions to avoid exposure to the light**
- **10.5. Incompatible materials:** No further relevant information available.
- **10.6. Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

7761-88-8 silver nitrate

Oral	LD50	50 mg/kg (Maus)
		1173 mg/kg (rat)
	LC50/96h	0.0085 mg/l (Fish)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Causes serious eye damage.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Corrosive

12 Ecological information

- **12.1. Toxicity**

- **Acquatic toxicity:**

7761-88-8 silver nitrate

EC50/48h	0.0006 mg/l (Daphnia magna)
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- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** No further relevant information available.
- **12.4. Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information:**
- **General notes:**
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.

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- Must not reach sewage water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
- **12.5. Results of PBT and vPvB assessment**
 - **PBT:** PBT - assessment not available.
 - **vPvB:** vPvB - assessment not available.
 - **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **14.1. UN-Number**
· **ADR, IMDG, IATA** UN3082
- **14.2. UN proper shipping name**
· **IMDG** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE SOLUTION)
· **IATA** Environmentally hazardous substance, liquid, n.o.s., (Silver nitrate solution)
- **14.3. Transport hazard class(es)**
· **ADR, IMDG, IATA**

 - **Class** 9 Miscellaneous dangerous substances and articles.
 - **Label** 9
- **14.4. Packing group**
· **ADR, IMDG, IATA** III
- **14.5. Environmental hazards:** Product contains environmentally hazardous substances: Silver nitrate solution
· **Marine pollutant:** Yes
Symbol (fish and tree)
· **Special marking (ADR):** Symbol (fish and tree)
· **Special marking (IATA):** Symbol (fish and tree)
- **14.6. Special precautions for user** Warning: Miscellaneous dangerous substances and articles.
· **Danger code (Kemler):** 90
· **EMS Number:** F-A,S-F
· **Segregation groups** Heavy metals and their salts (including their
- **14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

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· **Transport/Additional information:**· **ADR**· **Tunnel restriction code**

E

· **UN "Model Regulation":**UN3082, ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, LIQUID, N.O.S., solution, 9, III**15 Regulatory information**

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Water hazard class:** Water danger class 3 (Self-assessment): extremely hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H272 May intensify fire; oxidiser.

H314 Causes severe skin burns and eye damage.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

R34 Causes burns.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **Department issuing MSDS:** Product safety department· **Contact:** +49 6221 13840-35· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

· *** Data compared to the previous version altered.**

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 20.12.2011

Version number 1

Revision: 02.12.2011

1 Identification of the substance/mixture and of the company/undertaking

- **1.1. Product identifier**
- **Trade name:** Solution D for Silver Staining Kit
- **Article number:** 43812
- **1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4. Emergency telephone number:** +49 6131 19240 (university hospital Mainz)

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2 Hazards identification

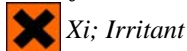
- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R36: Irritating to eyes.

- **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.

- **2.2. Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms** GHS07
- **Signal word** Warning
- **Hazard statements**
H319 Causes serious eye irritation.
- **Precautionary statements**
 - P264 Wash thoroughly after handling.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P337+P313 If eye irritation persists: Get medical advice/attention.
- **2.3. Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.

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Trade name: Solution D for Silver Staining Kit



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· **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

- **3.2. Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 497-19-8	sodium carbonate	 Xi R36	15-30%
EINECS: 207-838-8		 Eye Irrit. 2, H319	

- **Additional information** For the wording of the listed risk phrases refer to section 16.

4 First aid measures

- **4.1. Description of first aid measures**
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Immediately rinse with water.
- **After eye contact**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.
- **After swallowing** If symptoms persist consult doctor.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **6.3. Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
- **6.4. Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.

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- Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1. Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2. Exposure controls**
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Short term filter device:
Filter P2.
- **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Natural rubber, NR
- **Eye protection:** Tightly sealed goggles.
- **Body protection:** Protective work clothing.

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9 Physical and chemical properties

· 9.1. Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	Solution
· Colour:	Colourless
· Odour:	Odourless
· Odour threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

· Melting point/Melting range:	undetermined
· Boiling point/Boiling range:	undetermined

· Flash point: Not applicable

· Flammability (solid, gaseous) Not applicable.

· Ignition temperature:

· Decomposition temperature: Not determined.

· Self igniting: Product is not selfigniting.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits:

· Lower:	Not determined.
· Upper:	Not determined.

· Vapour pressure: Not determined.

· Density: Not determined

· Relative density Not determined.

· Vapour density Not determined.

· Evaporation rate Not determined.

· Solubility in / Miscibility with

· Water: Fully miscible

· Segregation coefficient (n-octanol/water): Not determined.

· Viscosity:

· dynamic:	Not determined.
· kinematic:	Not determined.

· Solvent content:

· Organic solvents:	0.0 %
· VOC %:	0.00 %

· Solids content: 25.0 %

· 9.2. Other information No further relevant information available.

10 Stability and reactivity

· 10.1. Reactivity No further relevant informations available

· 10.2. Chemical stability

· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

· 10.3. Possibility of hazardous reactions No dangerous reactions known

· 10.4. Conditions to avoid No further relevant information available.

· 10.5. Incompatible materials: No further relevant information available.

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· **10.6. Hazardous decomposition products:** No dangerous decomposition products known

11 Toxicological information

· **11.1. Information on toxicological effects**

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** No irritant effect.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Irritant

12 Ecological information

· **12.1. Toxicity**

· **Acquatic toxicity:** No further relevant information available.

· **12.2. Persistence and degradability** No further relevant information available.

· **Behaviour in environmental systems:**

· **12.3. Bioaccumulative potential** No further relevant information available.

· **12.4. Mobility in soil** No further relevant information available.

· **12.5. Results of PBT and vPvB assessment**

· **PBT:** PBT - assessment not available.

· **vPvB:** vPvB - assessment not available.

· **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

· **13.1. Waste treatment methods**

· **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **14.1. UN-Number**

· **ADR, IMDG, IATA**

Void

· **14.2. UN proper shipping name**

· **ADR, IMDG, IATA**

Void

· **14.3. Transport hazard class(es)**

· **ADR, IMDG, IATA**

· **Class**

Void

· **Label**

-

· **14.4. Packing group**

· **ADR, IMDG, IATA**

Void

· **14.5. Environmental hazards:**

· **Marine pollutant:**

No

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- | | |
|--|--|
| · 14.6. Special precautions for user | Not applicable. |
| · 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |

15 Regulatory information

- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**

H319 Causes serious eye irritation.

R36 Irritating to eyes.

- **Department issuing MSDS:** Product safety department

- **Contact:** +49 6221 13840-35

- **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

- *** Data compared to the previous version altered.**

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1 Identification of the substance/mixture and of the company/undertaking

- **1.1. Product identifier**
- **Trade name:** Solution E for Silver Staining Kit
- **Article number:** 43813
- **CAS Number:**
10102-17-7
- **EC number:**
231-867-5
- **1.2. Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the preparation** Laboratory chemicals
- **1.3. Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety department Tel.: +49 6221 13840-35
- **1.4. Emergency telephone number:** +49 6131 19240 (university hospital Mainz)

SERVA
Electrophoresis

2 Hazards identification

- **2.1. Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
The substance is not classified according to the CLP regulation.
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC not applicable**
- **Information concerning particular hazards for human and environment:**
The product does not have to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.
- **Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded upon from company and literature data.
- **2.2. Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **2.3. Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.

3 Composition/information on ingredients

- **3.1. Chemical characterization: Substances**
- **CAS No. Description:**
10102-17-7 Sodium Thiosulfate pentahydrate
- **Identification number(s):**
- **EC number:** 231-867-5
- **Description:**
- **Empirical formula:** $\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$

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· **MW:** 248,2 g/mol

4 First aid measures

- **4.1. Description of first aid measures**
- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Immediately rinse with water.
- **After eye contact**
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing.
- **After swallowing** If symptoms persist consult doctor.
- **Information for doctor**
- **4.2. Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **4.3. Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **5.1. Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2. Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Sulphur dioxide (SO₂)
Sodium oxides
- **5.3. Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **6.1. Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **6.2. Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Dilute with plenty of water.
- **6.3. Methods and material for containment and cleaning up:**
Pick up mechanically.
Dispose contaminated material as waste according to item 13.
- **6.4. Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **7.1. Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2. Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.

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- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **7.3. Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **8.1. Control parameters**
 - **Components with limit values that require monitoring at the workplace:** Not required.
 - **Additional information:** The lists that were valid during the creation were used as basis.
- **8.2. Exposure controls**
 - **Personal protective equipment**
 - **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
 - **Breathing equipment:** Suitable respiratory protective device recommended.
 - **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
 - **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
 - **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
 - **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**
Natural rubber, NR
 - **Eye protection:** Safety glasses
 - **Body protection:** Protective work clothing.

9 Physical and chemical properties

- **9.1. Information on basic physical and chemical properties**
 - **General Information**
 - **Appearance:**

Form:	Crystalline
Colour:	Colourless
 - **Odour:** Odourless
 - **Odour threshold:** Not determined.
 - **pH-value (100 g/l) at 20°C:** 7.2
 - **Change in condition**

Melting point/Melting range:	48°C
Boiling point/Boiling range:	undetermined
 - **Flash point:** Not applicable

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· Flammability (solid, gaseous)	Not applicable.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Self igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapour pressure:	Not determined.
· Density at 20°C:	1.73 g/cm ³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible
· Segregation coefficient (n-octanol/water):	Not determined.
· Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.
Organic solvents:	0.0 %
· VOC %:	0.00 %
· 9.2. Other information	No further relevant information available.

10 Stability and reactivity

- **10.1. Reactivity** No further relevant informations available
- **10.2. Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3. Possibility of hazardous reactions** No dangerous reactions known
- **10.4. Conditions to avoid** No further relevant information available.
- **10.5. Incompatible materials:** Avoid contact with: acids, strong oxidizers
- **10.6. Hazardous decomposition products:**
Sulphur oxides (SO_x)
Sodium oxides

11 Toxicological information

- **11.1. Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product is not subject to classification according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

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12 Ecological information

- **12.1. Toxicity**
- **Acquatic toxicity:** No further relevant information available.
- **12.2. Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **12.3. Bioaccumulative potential** No further relevant information available.
- **12.4. Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Generally not hazardous for water.
- **12.5. Results of PBT and vPvB assessment**
- **PBT:** PBT - assessment not available.
- **vPvB:** vPvB - assessment not available.
- **12.6. Other adverse effects** No further relevant information available.

13 Disposal considerations

- **13.1. Waste treatment methods**
- **Recommendation** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **14.1. UN-Number**
- **ADR, ADN, IMDG, IATA** Void
- **14.2. UN proper shipping name**
- **ADR** V o i d
- **ADN, IMDG, IATA** Void
Void
- **14.3. Transport hazard class(es)**
- **ADR, IMDG, IATA**
- **Class** Void
- **Label** -
- **ADN/R Class:** Void
- **14.4. Packing group**
- **ADR, IMDG, IATA** Void
- **14.5. Environmental hazards:**
- **Marine pollutant:** No
- **14.6. Special precautions for user** Not applicable.
- **14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **Transport/Additional information:** Not dangerous according to the above specifications.

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· UN "Model Regulation": -

15 Regulatory information

- **15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **National regulations**
- **Water hazard class:** Generally not hazardous for water.
- **15.2. Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Product safety department

· **Contact:** +49 6221 13840-35

· **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

· *** Data compared to the previous version altered.**

GB