

## SERVA CSF Silver Staining Kit

Cat. No. 43398

### Safety Data Sheets of the following Kit Components:

43828	Fixing Solution I
43829	Ethanol denaturated for Fixing Solution II and Wash Solution
43830	Fixing Solution III
43831	Solution A
43832	Solution B
43833	Solution C
43834	Solution D
43835	Solution E

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Fixing Solution I  
for CSF Silver Staining Kit
- **Article number:** 43828
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

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## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08

Carcinogenicity 2

H351 Suspected of causing cancer.



GHS05

Skin Corrosion 1A

H314 Causes severe skin burns and eye damage.



GHS07

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** GHS05, GHS07, GHS08
- **Signal word:** Danger
- **Hazard-determining components of labeling:**  
water, distilled, conductivity or of similar purity  
trichloroacetic acid
- **Hazard statements:**  
Causes severe skin burns and eye damage.  
Suspected of causing cancer.  
May cause respiratory irritation.
- **Precautionary statements**  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.

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**Trade name: Fixing Solution I**  
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If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment:**

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

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

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** aqueous solution

· **Dangerous components:**

76-03-9	trichloroacetic acid	15-30%
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· **Additional information:**

the product contains no further substances which shall be indicated according to REACH-Regulation (Regulation (EC) No. 1907/2006).

For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

· **Description of first aid measures**

· **General information:** Immediately remove any clothing soiled by the product.

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

· **After skin contact:**

Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.

Remove contaminated clothing immediately.

· **After eye contact:**

Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.

· **After swallowing:**

Rinse mouth immediately. Drink plenty of water and fresh air. Call a doctor immediately.

Do not induce vomiting!

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

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**Trade name: Fixing Solution I  
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## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Hydrogen chloride (HCl)  
Carbon monoxide and carbon dioxide  
Phosgene gas
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with eyes and skin.
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

76-03-9	trichloroacetic acid	1.5 ppm
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- **PAC-2:**

76-03-9	trichloroacetic acid	16 ppm
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- **PAC-3:**

76-03-9	trichloroacetic acid	99 ppm
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- **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

- **Precautions for safe handling:**  
Avoid contact with eyes and skin.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store only in the original receptacle.  
Provide acid-resistant floor.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store container tightly closed and dry.

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**Trade name: Fixing Solution I  
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· **Specific end use(s):** No further relevant information available.

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## 8 Exposure controls/personal protection

· **Control parameters**

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

**76-03-9 trichloroacetic acid (15-30%)**

REL Long-term value: 7 mg/m<sup>3</sup>, 1 ppm

TLV Long-term value: 0.5 ppm

A3

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

· **Exposure controls**

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

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

Short term filter device:

Filter P2

· **Protection of hands:**

Neoprene gloves

Rubber gloves

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

Protective gloves

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:**

Chloroprene rubber, CR

Nitrile rubber, NBR

· **Eye protection:** Tightly sealed goggles

· **Body protection:** Protective work clothing

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## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

- |   |                          |
|---|--------------------------|
| · <b>Color:</b>                                   | Colorless                |
| · <b>Odor:</b>                                    | Acidic                   |
| · <b>Odor threshold:</b>                          | Not determined.          |
| · <b>Melting point/Melting range:</b>             | No information available |
| · <b>Boiling point/Boiling range:</b>             | No information available |
| · <b>Flammability (solid, gaseous):</b>           | No information available |
| · <b>Explosion limits:</b>                        |                          |
| · <b>Lower:</b>                                   | No information available |
| · <b>Upper:</b>                                   | No information available |
| · <b>Flash point:</b>                             | No information available |
| · <b>Decomposition temperature:</b>               | No information available |
| · <b>pH-value at 20 °C (68 °F):</b>               | <0.5                     |
| · <b>Viscosity:</b>                               |                          |
| · <b>Kinematic viscosity:</b>                     | No information available |
| · <b>Dynamic viscosity:</b>                       | No information available |
| · <b>Solubility in / Miscibility with:</b>        |                          |
| · <b>Water:</b>                                   | Fully miscible.          |
| · <b>Partition coefficient (n-octanol/water):</b> | No information available |
| · <b>Vapor pressure at 20 °C (68 °F):</b>         | 0.1 hPa                  |
| · <b>Vapor pressure:</b>                          |                          |
| · <b>Density:</b>                                 | No information available |
| · <b>Relative density:</b>                        | No information available |

### · Other information

- |  |   |
|--|---|
| · <b>Appearance:</b>   |   |
| · <b>Form:</b>   | Solution                                      |
| · <b>Important information on protection of health and environment, and on safety:</b> |   |
| · <b>Danger of explosion:</b>  | Product does not present an explosion hazard. |
| · <b>VOC %:</b>  |   |
| · <b>VOC content:</b>  | 0.00 %  |

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant information available.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** Avoid contact with strong oxidizers.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the skin:** Causes severe skin burns and eye damage.
- **Carcinogenicity:** Suspected of causing cancer.
- **Specific target organ toxicity - single exposure:** May cause respiratory irritation.

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· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

76-03-9 trichloroacetic acid

2B

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

· **Toxicity:**

· **Aquatic toxicity:**

CAS 76-03-9 Trichloroacetic acid / Toxicity to algae: EC50/14d (*Chlorella pyrenoidosa*) = 0,27 mg/l

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

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

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

· **Results of PBT and vPvB assessment:**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects:**

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

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

## 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Dispose of in accordance with official regulations.

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

· **Uncleaned packagings:**

· **Recommendation:**

Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN2564

· **UN proper shipping name**

· **DOT**

Trichloroacetic acid, solution

· **ADR**

2564 TRICHLOROACETIC ACID SOLUTION

· **IMDG**

TRICHLOROACETIC ACID SOLUTION, MARINE POLLUTANT

· **IATA**

TRICHLOROACETIC ACID SOLUTION

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**Trade name: Fixing Solution I  
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· **Transport hazard class(es)**

· **DOT**



· **Class** 8 Corrosive substances  
 · **Label** 8

· **ADR, IATA**



· **Class:** 8 Corrosive substances  
 · **Label:** 8

· **IMDG**



· **Class** 8 Corrosive substances  
 · **Label** 8

· **Packing group**

· **DOT, ADR, IMDG, IATA** III

· **Environmental hazards** Product contains environmentally hazardous substances:  
trichloroacetic acid

· **Marine pollutant:** Symbol (fish and tree)

· **Special precautions for user** Warning: Corrosive substances

· **Hazard identification number (Kemler code):** 80

· **EMS Number:** F-A,S-B

· **Segregation groups** (SGG1) Acids

· **Stowage Category** B

· **Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

· **IMDG**

· **Limited quantities (LQ)** 5L

· **Excepted quantities (EQ)** Code: E1  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 1000 ml

· **UN "Model Regulation":** UN 2564 TRICHLOROACETIC ACID SOLUTION, 8, III

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**Trade name: Fixing Solution I  
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## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

None of the ingredients is listed.

· **Chemicals known to cause cancer:**

76-03-9 trichloroacetic acid

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

76-03-9 trichloroacetic acid

SC

· **TLV (Threshold Limit Value)**

76-03-9 trichloroacetic acid

A3

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS05, GHS07, GHS08

· **Signal word** Danger

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

water, distilled, conductivity or of similar purity  
trichloroacetic acid

· **Hazard statements**

Causes severe skin burns and eye damage.

Suspected of causing cancer.

May cause respiratory irritation.

· **Precautionary statements**

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

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**Trade name: Fixing Solution I  
for CSF Silver Staining Kit**

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· **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 SDS:** Product Safety Department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 09/29/2023

· **Abbreviations and acronyms:**

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

*ICAO: International Civil Aviation Organisation*

*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*

*bw: body weight*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

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

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*Skin Corrosion 1A: Skin corrosion/irritation – Category 1A*

*Carcinogenicity 2: Carcinogenicity – Category 2*

*Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3*

# Safety Data Sheet

acc. to OSHA HCS

Printing date 08/28/2024

Reviewed on 08/28/2024

## 1 Identification

- **Product identifier**
- **Trade name:** Ethanol denaturated  
for Fixing Solution II and Wash Solution
- **Article number:** 43829
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

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## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02

Flammable Liquids 2 H225 Highly flammable liquid and vapor.



GHS07

Eye Irritation 2A H319 Causes serious eye irritation.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:** GHS02, GHS07

- **Signal word:** Danger

- **Hazard statements:**

Highly flammable liquid and vapor.

Causes serious eye irritation.

- **Precautionary statements**

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

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	2	Health = 2
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** Concentration of substances classified as PBT: < 0,1%
- **vPvB:** concentration of substances classified as vPvB: < 0,1%

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description: Solution**

#### · **Dangerous components:**

64-17-5	ethanol	80-100%
67-63-0	propan-2-ol	0.5-1.5%
78-93-3	butanone	0.5-1.5%
3734-33-6	denatonium benzoate	0.1-0.2%

#### · **Additional information:**

The product does not contain any other substances that have to be declared according to REACH (Regulation (EC) No. 1907/2006).  
For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. In case of complaints, consult an ophthalmologist.
- **After swallowing:**  
Rinse mouth immediately. Drink plenty of water and fresh air. Call a doctor immediately.  
Do not induce vomiting!
- **Most important symptoms and effects, both acute and delayed** Dizziness
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

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- **Special hazards arising from the substance or mixture**  
Vapors may form flammable and explosive mixtures with air.  
Formation of toxic gases is possible during heating or in case of fire.  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**  
Collect contaminated fire fighting water separately. It must not enter the sewage system.  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Particular danger of slipping on leaked/spilled product.
- **Environmental precautions:**  
Prevent seepage into sewage system, workpits and cellars.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

### · PAC-1:

64-17-5	ethanol	1,800 ppm
67-63-0	propan-2-ol	400 ppm
78-93-3	butanone	200 ppm

### · PAC-2:

64-17-5	ethanol	3300* ppm
67-63-0	propan-2-ol	2000* ppm
78-93-3	butanone	2700* ppm

### · PAC-3:

64-17-5	ethanol	15000* ppm
67-63-0	propan-2-ol	12000** ppm
78-93-3	butanone	4000* ppm

- **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

- **Precautions for safe handling:**  
Keep receptacles tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:**  
Protect against electrostatic charges.  
Keep ignition sources away - Do not smoke.

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Reviewed on 08/28/2024

**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

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- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store only in the original receptacle.  
Unsuitable material for receptacle: aluminium.  
Store in a cool location.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the remaining constituent has no known exposure limits.

### 64-17-5 ethanol (80-100%)

PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1000 ppm
	A3

### 67-63-0 propan-2-ol (0.5-1.5%)

PEL	Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
REL	Short-term value: 1225 mg/m <sup>3</sup> , 500 ppm Long-term value: 980 mg/m <sup>3</sup> , 400 ppm
TLV	Short-term value: 400 ppm Long-term value: 200 ppm
	BEI, A4

### 78-93-3 butanone (0.5-1.5%)

PEL	Long-term value: 590 mg/m <sup>3</sup> , 200 ppm
REL	Short-term value: 885 mg/m <sup>3</sup> , 300 ppm Long-term value: 590 mg/m <sup>3</sup> , 200 ppm
TLV	Short-term value: 150 ppm Long-term value: 75 ppm
	BEI, Skin

- **Ingredients with biological limit values:**

### 67-63-0 propan-2-ol (0.5-1.5%)

BEI	40 mg/L Medium: urine Time: end of shift at end of workweek Parameter: Acetone (background, nonspecific)
-----	---

### 78-93-3 butanone (0.5-1.5%)

BEI	2 mg/L Medium: urine Time: end of shift Parameter: Methyl ethyl ketone (nonspecific)
-----	---

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Additional information about design of technical systems:** No further data; see section 7.

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# Safety Data Sheet

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Printing date 08/28/2024

Reviewed on 08/28/2024

**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

(Contd. of page 4)

- **Personal protective equipment:**
- **General protective and hygienic measures:**  
 Keep away from foodstuffs, beverages and feed.  
 Store protective clothing separately.  
 Immediately remove all soiled and contaminated clothing.  
 Avoid contact with the eyes and skin.  
 Wash hands before breaks and at the end of work.  
 Avoid contact with the eyes.
- **Breathing equipment:**  
 Short term filter device:  
 Filter A/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 trough 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:**  
 Nitrile rubber, NBR  
 Chloroprene rubber, CR
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing

## \* 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information:**
- **Color:** Colorless
- **Odor:** Characteristic
- **Odor threshold:** Not determined.
- **Melting point/Melting range:** -114 °C (-173.2 °F)
- **Boiling point/Boiling range:** 78 °C (172.4 °F)
- **Flammability (solid, gaseous):** Highly flammable.
- **Explosion limits:**
- **Lower:** 3.5 Vol %
- **Upper:** 15 Vol %
- **Flash point:** 12 °C (53.6 °F)
- **Auto igniting:** 425 °C (797 °F)
- **Decomposition temperature:** No information available
- **pH-value at 20 °C (68 °F):** 7
- **Viscosity:**
- **Kinematic viscosity:** No information available
- **Dynamic viscosity at 20 °C (68 °F):** 1.2 mPas

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**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

(Contd. of page 5)

· <b>Solubility in / Miscibility with:</b>	
· <b>Water:</b>	Fully miscible.
· <b>Partition coefficient (n-octanol/water):</b>	No information available
· <b>Vapor pressure at 20 °C (68 °F):</b>	59 hPa (44.3 mm Hg)
· <b>Vapor pressure at 50 °C (122 °F):</b>	280 hPa (210 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	0.79 g/cm <sup>3</sup> (6.59255 lbs/gal)
· <b>Relative density:</b>	No information available
· <b>Other information</b>	Further physicochemical data are not available.
· <b>Appearance:</b>	
· <b>Form:</b>	Liquid
· <b>Important information on protection of health and environment, and on safety:</b>	
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>VOC %:</b>	
· <b>VOC content:</b>	0.00 %
· <b>Molecular weight</b>	46.1 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** Vapors may form flammable and explosive mixtures with air.
- **Conditions to avoid:**  
Avoid high temperatures, flames, sparks  
static discharge
- **Incompatible materials:** Avoid contact with oxidizing agents.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

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

### 64-17-5 ethanol

Oral	LD50	10,470 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rabbit)
Inhalative	LC50/4h	124.7 mg/l (rat)

- **on the eye:** Causes serious eye irritation.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

64-17-5	ethanol	1
67-63-0	propan-2-ol	3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

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**Trade name: Ethanol denaturated  
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· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:**
  - LC50/96h (*Oncorhynchus mykiss*): 13000 mg/l
  - LC50/48h (*Daphnia magna*): 12340 mg/l
  - Toxicity to algae: NOEC (*Lemna gibba*, OECD 201) = 280 mg/l
- **Persistence and degradability:** Easily biodegradable
- **Other information:**
  - OECD 301 B (Ready Biodegradability/ CO<sub>2</sub> evolution test)
  - Biodegradability: 97 %
- **Bioaccumulative potential:** BCF: 0.66 - 3.2 mg/l
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Concentration of substances classified as PBT: < 0,1%
- **vPvB:** Concentration of substances classified as vPvB: < 0.1%
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**
  - Do not allow product to reach ground water, water course or sewage system.
  - Water hazard class 1 (Self-assessment): slightly hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
  - Dispose of in accordance with official regulations.
  - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
  - Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |                                  |  |
|----------------------------------|--|
| · <b>UN-Number</b>               |  |
| · <b>DOT, ADR, IMDG, IATA</b>    | UN1170   |
| · <b>UN proper shipping name</b> |  |
| · <b>DOT</b>                     | Ethanol solutions                              |
| · <b>ADR</b>                     | 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION) |
| · <b>IMDG</b>                    | ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)      |
| · <b>IATA</b>                    | ETHANOL SOLUTION                               |

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**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

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· **Transport hazard class(es)**

· **DOT**



· **Class** 3 Flammable liquids  
· **Label** 3

· **ADR, IMDG, IATA**



· **Class:** 3 Flammable liquids  
· **Label:** 3

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards**

· **Marine pollutant:** No

· **Special precautions for user** Warning: Flammable liquids

· **Hazard identification number (Kemler code):** 33

· **EMS Number:** F-E,S-D

· **Stowage Category** A

· **Transport in bulk according to Annex II of  
MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

· **IMDG**

· **Limited quantities (LQ)** 1L  
· **Excepted quantities (EQ)** Code: E2  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml

· **UN "Model Regulation":** UN 1170 ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION), 3, II

## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

67-63-0 | propan-2-ol

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**Trade name: Ethanol denaturated  
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· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

None of the ingredients is listed.

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

64-17-5 ethanol

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

78-93-3 butanone

I

· **TLV (Threshold Limit Value)**

64-17-5 ethanol

A3

67-63-0 propan-2-ol

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS02, GHS07

· **Signal word** Danger

· **Hazard statements**

Highly flammable liquid and vapor.

Causes serious eye irritation.

· **Precautionary statements**

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

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

· **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 SDS:** Product Safety Department

· **Contact:** +49 6221 13840-35

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# Safety Data Sheet

## acc. to OSHA HCS

Printing date 08/28/2024

Reviewed on 08/28/2024

**Trade name: Ethanol denaturated  
for Fixing Solution II and Wash Solution**

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· **Date of preparation / last revision** 08/28/2024 / -

· **Abbreviations and acronyms:**

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

ICAO: International Civil Aviation Organisation

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

bw: body weight

UFI: Unique Formula Identifier

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flammable Liquids 2: Flammable liquids – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 01/26/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Fixing Solution III  
for CSF Silver Staining Kit
- **Article number:** 43830
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

**SERVA**  
■ serving scientists ■

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06

Acute Toxicity - Inhalation 3

H331 Toxic if inhaled.



GHS08

Sensitization - Respiratory 1

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



GHS05

Skin Corrosion 1B

H314 Causes severe skin burns and eye damage.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:** GHS05, GHS06, GHS07, GHS08

- **Signal word:** Danger

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# Safety Data Sheet

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Printing date 09/29/2023

Reviewed on 01/26/2023

**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

(Contd. of page 1)

- **Hazard-determining components of labeling:**

glutaral

- **Hazard statements:**

Harmful if swallowed.

Toxic if inhaled.

Causes severe skin burns and eye damage.

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

May cause an allergic skin reaction.

May cause respiratory irritation.

- **Precautionary statements**

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = \*3

Fire = 0

Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment:**

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

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

### \* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

· **Description:** aqueous solution

- **Dangerous components:**

111-30-8	glutaral	15-30%
----------	----------	--------

- **Additional information:**

the product contains no further substances which shall be indicated according to REACH-Regulation (Regulation (EC) No. 1907/2006).

For the wording of the listed hazard phrases refer to section 16.

### \* 4 First-aid measures

- **Description of first aid measures**

- **General information:**

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

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

(Contd. of page 2)

- **After inhalation:** Provide fresh air. Call for doctor immediately.
- **After skin contact:**  
Immediate wash with copious amounts of water and soap; rinse thoroughly; seek medical advice.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:**  
Rinse out mouth. Call a doctor immediately.  
Do not induce vomiting - risk of chemical burns!
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, formation of hazardous fire gases or vapors possible.  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.
- **Additional information**  
Collect contaminated fire fighting water separately. It must not enter the sewage system.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with eyes and skin.
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

· <b>PAC-1:</b>		
111-30-8	glutaral	0.2 ppm
· <b>PAC-2:</b>		
111-30-8	glutaral	1 ppm
· <b>PAC-3:</b>		
111-30-8	glutaral	5 ppm

- **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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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

(Contd. of page 3)

## 7 Handling and storage

- **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 ignition sources away - Do not smoke.  
Keep respiratory protective device available.

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

- **Storage:**

- **Requirements to be met by storerooms and receptacles:**

Storage at +2 to +8 °C  
Store only in the original receptacle.

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

- **Further information about storage conditions:** Store container tightly closed and dry.

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

## 8 Exposure controls/personal protection

- **Control parameters**

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

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

REL Ceiling limit value: 0.8 mg/m<sup>3</sup>, 0.2 ppm  
See Pocket Guide App. C

TLV Ceiling limit value: 0.05 ppm  
DSEN;RSEN ;activated or inactivated, A4

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

- **Exposure controls**

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

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.  
Wash hands before breaks and at the end of work.

- **Breathing equipment:**

Short term filter device:  
Filter A/P3

- **Protection of hands:**

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

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.

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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

(Contd. of page 4)

- **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:**  
Neoprene gloves  
Nitrile rubber, NBR
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

- |   |                          |
|---|--------------------------|
| · <b>Color:</b>                                   | Colorless                |
| · <b>Odor:</b>                                    | Unpleasant               |
| · <b>Odor threshold:</b>                          | No information available |
| · <b>Melting point/Melting range:</b>             | No information available |
| · <b>Boiling point/Boiling range:</b>             | No information available |
| · <b>Flammability (solid, gaseous):</b>           | No information available |
| · <b>Explosion limits:</b>                        |                          |
| · <b>Lower:</b>                                   | No information available |
| · <b>Upper:</b>                                   | No information available |
| · <b>Flash point:</b>                             | No information available |
| · <b>Decomposition temperature:</b>               | No information available |
| · <b>pH-value at 20 °C (68 °F):</b>               | 3-5.5                    |
| · <b>Viscosity:</b>                               |                          |
| · <b>Kinematic viscosity:</b>                     | No information available |
| · <b>Dynamic viscosity:</b>                       | No information available |
| · <b>Solubility in / Miscibility with:</b>        |                          |
| · <b>Water:</b>                                   | Fully miscible.          |
| · <b>Partition coefficient (n-octanol/water):</b> | No information available |
| · <b>Vapor pressure:</b>                          | No information available |
| · <b>Vapor pressure:</b>                          |                          |
| · <b>Density:</b>                                 | No information available |
| · <b>Relative density:</b>                        | No information available |

· **Other information** Further physicochemical data are not available.

· **Appearance:**

· **Form:** Solution

· **Important information on protection of health and environment, and on safety:**

· **Danger of explosion:** no information available

· **VOC %:**

· **VOC content:** 0.00 %

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** Vapours can form flammable and explosive mixtures with air.
- **Conditions to avoid:** High temperatures
- **Incompatible materials:**  
Avoid contact with:

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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

(Contd. of page 5)

- Strong oxidizers
- strong acids
- strong bases
- Amines
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

Harmful if swallowed.

Toxic if inhaled.

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

**111-30-8 glutaral**

Oral	LD50	77 mg/kg (rat)
Inhalative	LC50/4h	0.28-0.39 mg/l (rat)
	LC50/96h	12.2 mg/l (trout)

- **on the skin:** Causes severe skin burns and eye damage.

- **Sensitization:**

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

May cause an allergic skin reaction.

- **Specific target organ toxicity - single exposure:** May cause respiratory irritation.

- **Other information (about experimental toxicology)**

Glutaraldehyde is identified as a substance of very high concern in accordance with Article 57(f) of Regulation (EC) 1907/2006 (REACH) because it is a substance with respiratory sensitising properties for which there is scientific evidence of probable serious effects to human health which gives rise to an equivalent level of concern to those substances listed in points (a) to (e) of Article 57 of the REACH regulation. (ECHA SVHC Support Document - Glutaral, CAS-No. 111-30-8; page 4)

- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity:**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability:** No further relevant information available.

- **Bioaccumulative potential:** No further relevant information available.

- **Mobility in soil:** No further relevant information available.

- **Results of PBT and vPvB assessment:**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects:**

- **Additional ecological information:**

- **General notes:**

Do not allow product to reach ground water, water course or sewage system.

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 01/26/2023

**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**




(Contd. of page 6)

Water hazard class 3 (Self-assessment): extremely hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Dispose of in accordance with official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN2927
- **UN proper shipping name**
- **DOT** Toxic liquids, corrosive, organic, n.o.s. (glutaral)
- **ADR** 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral), ENVIRONMENTALLY HAZARDOUS
- **IMDG** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral)
- **IATA** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral mixture)
- **Transport hazard class(es)**
- **DOT**
- 
- **Class** 6.1 Toxic substances
- **Label** 6.1, 8
- **ADR**
- 
- **Class:** 6.1 Toxic substances
- **Label:** 6.1+8
- **IMDG**
- 
- **Class** 6.1 Toxic substances

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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

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· <b>Label</b>	6.1/8
· <b>IATA</b>	
	
· <b>Class</b>	6.1 Toxic substances
· <b>Label</b>	6.1 (8)
· <b>Packing group</b>	II
· <b>DOT, ADR, IMDG, IATA</b>	II
· <b>Environmental hazards</b>	
· <b>Marine pollutant:</b>	Yes
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Toxic substances
· <b>Hazard identification number (Kemler code):</b>	68
· <b>EMS Number:</b>	F-A,S-B
· <b>Stowage Category</b>	B
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	100 ml
· <b>Excepted quantities (EQ)</b>	Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (GLUTARAL), 6.1 (8), II, ENVIRONMENTALLY HAZARDOUS

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

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**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

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· **Proposition 65**

None of the ingredients is listed.

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

111-30-8 | glutaral

A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS05, GHS06, GHS07, GHS08

· **Signal word** Danger

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

glutaral

· **Hazard statements**

Harmful if swallowed.

Toxic if inhaled.

Causes severe skin burns and eye damage.

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

May cause an allergic skin reaction.

May cause respiratory irritation.

· **Precautionary statements**

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

· **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 SDS:** Product Safety Department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 09/29/2023

· **Abbreviations and acronyms:**

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

ICAO: International Civil Aviation Organisation

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# Safety Data Sheet

## acc. to OSHA HCS

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Reviewed on 01/26/2023

**Trade name: Fixing Solution III  
for CSF Silver Staining Kit**

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*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*

*bw: body weight*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

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

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*Acute Toxicity - Oral 4: Acute toxicity – Category 4*

*Acute Toxicity - Inhalation 3: Acute toxicity – Category 3*

*Skin Corrosion 1B: Skin corrosion/irritation – Category 1B*

*Sensitization - Respiratory 1: Respiratory sensitisation – Category 1*

*Sensitization - Skin 1: Skin sensitisation – Category 1*

*Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3*

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution A  
for CSF Silver Staining Kit
- **Article number:** 43831
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

**SERVA**  
■ serving scientists ■

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05

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

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** GHS05
- **Signal word:** Danger
- **Hazard statements:**  
Causes severe skin burns and eye damage.
- **Precautionary statements**  
Wear protective gloves/protective clothing/eye protection/face protection.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing.  
Store locked up.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3  
Fire = 0  
Reactivity = 0

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Reviewed on 09/29/2023

**Trade name: Solution A**  
for CSF Silver Staining Kit

(Contd. of page 1)

- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - Assessment not available.
- **vPvB:** vPvB - Assessment not available.

### 3 Composition/information on ingredients

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

- **Dangerous components:**

1336-21-6	ammonia, aqueous solution	2.5-7%
-----------	---------------------------	--------

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

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with eyes and skin.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

- **PAC-I:**

1336-21-6	ammonia, aqueous solution	61 ppm
1310-73-2	sodium hydroxide	0.5 mg/m <sup>3</sup>

(Contd. on page 3)



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· **PAC-2:**

1336-21-6	ammonia, aqueous solution	330 ppm
1310-73-2	sodium hydroxide	5 mg/m <sup>3</sup>

· **PAC-3:**

1336-21-6	ammonia, aqueous solution	2,300 ppm
1310-73-2	sodium hydroxide	50 mg/m <sup>3</sup>

· **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

- **Precautions for safe handling:** Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

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

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**Trade name: Solution A**  
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- **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.
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

- |   |                                     |
|---|-------------------------------------|
| · <b>Color:</b>                                   | Colorless                           |
| · <b>Odor:</b>                                    | Like ammoniac                       |
| · <b>Odor threshold:</b>                          | Not determined.                     |
| · <b>Melting point/Melting range:</b>             | 0 °C (32 °F)                        |
| · <b>Boiling point/Boiling range:</b>             | No information available            |
| · <b>Flammability (solid, gaseous):</b>           | No information available            |
| · <b>Explosion limits:</b>                        |                                     |
| · <b>Lower:</b>                                   | No information available            |
| · <b>Upper:</b>                                   | No information available            |
| · <b>Flash point:</b>                             | No information available            |
| · <b>Decomposition temperature:</b>               | No information available            |
| · <b>Viscosity:</b>                               |                                     |
| · <b>Kinematic viscosity:</b>                     | Not determined.                     |
| · <b>Dynamic viscosity:</b>                       | Not determined.                     |
| · <b>Solubility in / Miscibility with:</b>        |                                     |
| · <b>Water:</b>                                   | Fully miscible.                     |
| · <b>Partition coefficient (n-octanol/water):</b> | No information available            |
| · <b>Vapor pressure at 20 °C (68 °F):</b>         | 23 hPa (17.3 mm Hg)                 |
| · <b>Vapor pressure:</b>                          |                                     |
| · <b>Density at 20 °C (68 °F):</b>                | 1 g/cm <sup>3</sup> (8.345 lbs/gal) |
| · <b>Relative density:</b>                        | No information available            |

### · Other information

- |  |   |
|--|---|
| · <b>Appearance:</b>   |   |
| · <b>Form:</b>   | Solution                                      |
| · <b>Important information on protection of health and environment, and on safety:</b> |   |
| · <b>Danger of explosion:</b>  | Product does not present an explosion hazard. |
| · <b>VOC %:</b>  |   |
| · <b>VOC content:</b>  | 0.00 %  |
| · <b>Molecular weight</b>  | 18.02 g/mol                                   |

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No dangerous reactions known.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** Avoid contact with: metals
- **Hazardous decomposition products:** Nitrogen oxides (NO<sub>x</sub>)

US

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**Trade name: Solution A**  
for CSF Silver Staining Kit

(Contd. of page 4)

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the skin:** Causes severe skin burns and eye damage.
- **Additional toxicological information:**
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity:**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability:** No further relevant information available.
  - **Bioaccumulative potential:** No further relevant information available.
  - **Mobility in soil:** No further relevant information available.
  - **Results of PBT and vPvB assessment:**
  - **PBT:** Not applicable.
  - **vPvB:** Not applicable.
  - **Other adverse effects:**
  - **Additional ecological information:**
  - **General notes:**
- Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- Rinse off of bigger amounts into drains or the aquatic environment may lead to increased pH-values. A high pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably reduced, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
- Water hazard class 1 (Self-assessment): slightly hazardous for water

## 13 Disposal considerations

- **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

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN3266

(Contd. on page 6)

# Safety Data Sheet

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Reviewed on 09/29/2023

**Trade name: Solution A**  
for CSF Silver Staining Kit

(Contd. of page 5)

· **UN proper shipping name**  
· **DOT**  
· **ADR**  
· **IMDG, IATA**

*Corrosive liquid, basic, inorganic, n.o.s. solution*  
*3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. solution*  
*CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. solution*

· **Transport hazard class(es)**  
· **DOT**



· **Class**  
· **Label**

*8 Corrosive substances*  
*8*

· **ADR, IMDG, IATA**



· **Class:**  
· **Label:**

*8 Corrosive substances*  
*8*

· **Packing group**  
· **DOT, ADR, IMDG, IATA**

*III*

· **Environmental hazards**  
· **Marine pollutant:**

*No*

· **Special precautions for user**  
· **Hazard identification number (Kemler code):**  
· **EMS Number:**  
· **Stowage Category**  
· **Stowage Code**  
· **Segregation Code**

*Warning: Corrosive substances*  
*80*  
*F-A S-B*  
*A*  
*SW2 Clear of living quarters.*  
*SG35 Stow "separated from" SGG1-acids*

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

*Not applicable.*

· **Transport/Additional information:**

· **ADR**  
· **Excepted quantities (EQ)**

*Code: E1*  
*Maximum net quantity per inner packaging: 30 ml*  
*Maximum net quantity per outer packaging: 1000 ml*

· **IMDG**  
· **Limited quantities (LQ)**  
· **Excepted quantities (EQ)**

*5L*  
*Code: E1*  
*Maximum net quantity per inner packaging: 30 ml*  
*Maximum net quantity per outer packaging: 1000 ml*

· **UN "Model Regulation":**

*UN 3266 CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. SOLUTION, 8, III*

US

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Printing date 09/29/2023

Reviewed on 09/29/2023

**Trade name: Solution A**  
for CSF Silver Staining Kit

(Contd. of page 6)

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

- **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

- **Section 313 (Specific toxic chemical listings):**

1336-21-6 ammonia, aqueous solution

- **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

- **Hazardous Air Pollutants**

None of the ingredients is listed.

- **Proposition 65**

None of the ingredients is listed.

- **Chemicals known to cause cancer:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenicity categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value)**

None of the ingredients is listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms** GHS05

- **Signal word** Danger

- **Hazard statements**

Causes severe skin burns and eye damage.

- **Precautionary statements**

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Store locked up.

- **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 SDS:** Product Safety Department

(Contd. on page 8)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

**Trade name: Solution A  
for CSF Silver Staining Kit**

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· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 09/29/2023

· **Abbreviations and acronyms:**

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

*ICAO: International Civil Aviation Organisation*

*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*

*bw: body weight*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*DOT: US Department of Transportation*

*IATA: International Air Transport Association*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*ELINCS: European List of Notified Chemical Substances*

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

*NFPA: National Fire Protection Association (USA)*

*HMIS: Hazardous Materials Identification System (USA)*

*VOC: Volatile Organic Compounds (USA, EU)*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*

*Skin Corrosion 1B: Skin corrosion/irritation – Category 1B*

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/27/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution B  
for CSF Silver Staining Kit
- **Article number:** 43832
- **CAS Number:**  
7732-18-5
- **EC number:**  
231-791-2
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

**SERVA**  
■ serving scientists ■

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** GHS07
- **Signal word:** Warning
- **Hazard statements:**  
Causes skin irritation.  
Causes serious eye irritation.
- **Precautionary statements**  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If on skin: Wash with plenty of water.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continue rinsing.  
If skin irritation occurs: Get medical advice/attention.  
If eye irritation persists: Get medical advice/attention.  
Take off contaminated clothing.

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# Safety Data Sheet

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**Trade name: Solution B**  
for CSF Silver Staining Kit

(Contd. of page 1)

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - Assessment not available.
- **vPvB:** vPvB - Assessment not available.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**  
7732-18-5 water, distilled, conductivity or of similar purity
- **Identification number(s):**
- **EC number:** 231-791-2
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

7761-88-8	silver nitrate	1-3%
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### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:** Wash out the mouth and call a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

US

(Contd. on page 3)



# Safety Data Sheet

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Printing date 09/29/2023

Reviewed on 09/27/2023

**Trade name: Solution B**  
for CSF Silver Staining Kit

(Contd. of page 2)

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:**  
Inform respective authorities in case of seepage into water course or sewage system.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7761-88-8	silver nitrate	0.047 mg/m <sup>3</sup>
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- **PAC-2:**

7761-88-8	silver nitrate	0.9 mg/m <sup>3</sup>
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- **PAC-3:**

7761-88-8	silver nitrate	5.4 mg/m <sup>3</sup>
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- **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

- **Precautions for safe handling:** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Store container tightly closed and dry.  
Protect from exposure to the light.
- **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

- **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.
- **Exposure controls**
- **Additional information about design of technical systems:** No further data; see section 7.
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Store protective clothing separately.  
Immediately remove all soiled and contaminated clothing.  
Avoid contact with the eyes and skin.  
Wash hands before breaks and at the end of work.
- **Breathing equipment:**  
Short term filter device:  
Filter P2

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# Safety Data Sheet

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**Trade name: Solution B  
for CSF Silver Staining Kit**

(Contd. of page 3)

- **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.
- **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:**  
Nitrile rubber, NBR  
Chloroprene rubber, CR
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information:**
- **Color:** Colorless
- **Odor:** Odorless
- **Odor threshold:** Not determined.
- **Melting point/Melting range:** 0 °C (32 °F)
- **Boiling point/Boiling range:** 100 °C (212 °F)
- **Flammability (solid, gaseous):** No information available
- **Explosion limits:**
- **Lower:** No information available
- **Upper:** Not determined.
- **Flash point:** No information available
- **Decomposition temperature:** No information available
- **pH-value:** 7
- **Viscosity:**
- **Kinematic viscosity:** No information available
- **Dynamic viscosity at 20 °C (68 °F):** 0.952 mPas
- **Solubility in / Miscibility with:**
- **Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)
- **Vapor pressure:**
- **Density at 20 °C (68 °F):** 1.1005 g/cm<sup>3</sup> (9.18367 lbs/gal)
- **Relative density:** Not determined.
- **Other information** Further physicochemical data are not available.
- **Appearance:**
- **Form:** Solution
- **Important information on protection of health and environment, and on safety:**
- **Danger of explosion:** Product does not present an explosion hazard.
- **VOC content:** 0.00 %

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**Trade name: Solution B**  
for CSF Silver Staining Kit

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· **Molecular weight** 18.02 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant information available.
- **Conditions to avoid:** exposure to the light
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the skin:** Causes skin irritation.
- **on the eye:** Causes serious eye irritation.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 3 (Self-assessment): extremely hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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**Trade name: Solution B**  
for CSF Silver Staining Kit

(Contd. of page 5)

- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

<ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	UN3082
<ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul>	Environmentally hazardous substance, liquid, n.o.s. (Silver nitrate) 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE), MARINE POLLUTANT ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE)
<ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul> <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>	9 Miscellaneous dangerous substances and articles 9
<ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>	III
<ul style="list-style-type: none"> <li>· <b>Environmental hazards</b></li> <li>· <b>Marine pollutant:</b></li> <li>· <b>Special marking (ADR):</b></li> <li>· <b>Special marking (IATA):</b></li> </ul>	Product contains environmentally hazardous substances: silver nitrate Yes Symbol (fish and tree) Symbol (fish and tree) Symbol (fish and tree)
<ul style="list-style-type: none"> <li>· <b>Special precautions for user</b></li> <li>· <b>Hazard identification number (Kemler code):</b></li> <li>· <b>EMS Number:</b></li> <li>· <b>Segregation groups</b></li> <li>· <b>Stowage Category</b></li> </ul>	Warning: Miscellaneous dangerous substances and articles 90 F-A,S-F (SGG7) Heavy metals and their salts (including their organometallic compounds) A
<ul style="list-style-type: none"> <li>· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b></li> </ul>	Not applicable.
<ul style="list-style-type: none"> <li>· <b>Transport/Additional information:</b></li> <li>· <b>DOT</b></li> <li>· <b>Remarks:</b></li> </ul>	Special marking with the symbol (fish and tree).

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**Trade name: Solution B**  
for CSF Silver Staining Kit

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· <b>ADR</b> · <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>IMDG</b> · <b>Limited quantities (LQ)</b> · <b>Excepted quantities (EQ)</b>	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE), 9, III

## 15 Regulatory information

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

No further relevant information available.

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

7761-88-8 | silver nitrate

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

None of the ingredients is listed.

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms GHS07**

· **Signal word Warning**

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# Safety Data Sheet

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**Trade name: Solution B  
for CSF Silver Staining Kit**

(Contd. of page 7)

- **Hazard statements**
  - Causes skin irritation.
  - Causes serious eye irritation.
- **Precautionary statements**
  - Avoid release to the environment.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - If on skin: Wash with plenty of water.
  - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - If skin irritation occurs: Get medical advice/attention.
  - If eye irritation persists: Get medical advice/attention.
  - Take off contaminated clothing.
- **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 SDS:** Product Safety Department
- **Contact:** +49 6221 13840-35
- **Date of preparation / last revision** 09/29/2023
- **Abbreviations and acronyms:**
  - RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  - ICAO: International Civil Aviation Organisation
  - 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
  - bw: body weight
  - ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Skin Irritation 2: Skin corrosion/irritation – Category 2
  - Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution C  
for CSF Silver Staining Kit
- **Article number:** 43833
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Eye Irritation 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** GHS07
- **Signal word:** Warning
- **Hazard statements:**  
Causes serious eye irritation.
- **Precautionary statements**  
Wash thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 2  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2  
FIRE 0 Fire = 0  
REACTIVITY 0 Reactivity = 0

(Contd. on page 2)

US

# Safety Data Sheet

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Printing date 09/29/2023

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**Trade name: Solution C**  
for CSF Silver Staining Kit

(Contd. of page 1)

- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - Assessment not available.
- **vPvB:** vPvB - Assessment not available.

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution

- **Dangerous components:**

5949-29-1	Citric acid monohydrate	15-30%
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- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:** Rinse out mouth. In case of complaints, consult a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

- **PAC-I:**

None of the ingredients is listed.
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(Contd. on page 3)



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**Trade name: Solution C**  
**for CSF Silver Staining Kit**

(Contd. of page 2)

· **PAC-2:**

*None of the ingredients is listed.*

· **PAC-3:**

*None of the ingredients is listed.*

· **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

- **Precautions for safe handling:** *No special precautions are necessary if used correctly.*
- **Information about protection against explosions and fires:** *No special measures required.*
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** *Store only in the original receptacle.*
- **Information about storage in one common storage facility:** *Not required.*
- **Further information about storage conditions:** *Store container tightly closed and dry.*
- **Specific end use(s):** *No further relevant information available.*

## 8 Exposure controls/personal protection

- **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.*
- **Exposure controls**
- **Additional information about design of technical systems:** *No further data; see section 7.*
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
*Keep away from foodstuffs, beverages and feed.*  
*Store protective clothing separately.*  
*Immediately remove all soiled and contaminated clothing.*  
*Avoid contact with the eyes and skin.*  
*Wash hands before breaks and at the end of work.*
- **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.*  
*Protective gloves*  
*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.*

(Contd. on page 4)

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**Trade name: Solution C**  
for CSF Silver Staining Kit

(Contd. of page 3)

- **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:**  
Nitrile rubber, NBR  
Chloroprene rubber, CR
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

- |   |   |
|---|---|
| · <b>Color:</b>                                   | Colorless                                 |
| · <b>Odor:</b>                                    | Recognizable                              |
| · <b>Odor threshold:</b>                          | Not determined.                           |
| · <b>Melting point/Melting range:</b>             | No information available                  |
| · <b>Boiling point/Boiling range:</b>             | No information available                  |
| · <b>Flammability (solid, gaseous):</b>           | No information available                  |
| · <b>Explosion limits:</b>                        |   |
| · <b>Lower:</b>                                   | No information available                  |
| · <b>Upper:</b>                                   | No information available                  |
| · <b>Flash point:</b>                             | No information available                  |
| · <b>Decomposition temperature:</b>               | No information available                  |
| · <b>pH-value at 20 °C (68 °F):</b>               | 1-2                                       |
| · <b>Viscosity:</b>                               |   |
| · <b>Kinematic viscosity:</b>                     | No information available                  |
| · <b>Dynamic viscosity:</b>                       | No information available                  |
| · <b>Solubility in / Miscibility with:</b>        |   |
| · <b>Water:</b>                                   | Fully miscible.                           |
| · <b>Partition coefficient (n-octanol/water):</b> | No information available                  |
| · <b>Vapor pressure:</b>                          | No information available                  |
| · <b>Vapor pressure:</b>                          |   |
| · <b>Density at 20 °C (68 °F):</b>                | 1.108 g/cm <sup>3</sup> (9.24626 lbs/gal) |
| · <b>Relative density:</b>                        | Not determined.                           |

· **Other information** Further physicochemical data are not available.

· **Appearance:**

· **Form:** Solution

· **Important information on protection of health and environment, and on safety:**

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

· **VOC %:** 0.00 %

· **VOC content:** 0.00 %

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant information available.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.

(Contd. on page 5)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

**Trade name: Solution C**  
**for CSF Silver Staining Kit**

(Contd. of page 4)

· **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the eye:** Causes serious eye irritation.
- **Additional toxicological information:**
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (Self-assessment): slightly hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, ADN, IMDG, IATA**                      Void
- **UN proper shipping name**
- **DOT, ADR, ADN, IMDG, IATA**                      Void

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# Safety Data Sheet

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**Trade name: Solution C**  
**for CSF Silver Staining Kit**

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- |  |  |
|--|--|
| <b>· Transport hazard class(es)</b>  |  |
| <b>· DOT, ADR, ADN, IMDG, IATA</b>   |  |
| <b>· Class</b>   | Void   |
| <b>· Packing group</b>   |  |
| <b>· DOT, ADR, IMDG, IATA</b>  | Void   |
| <b>· Environmental hazards</b>   |  |
| <b>· Marine pollutant:</b>   | No   |
| <b>· Special precautions for user</b>  | Not applicable.                                      |
| <b>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.                                      |
| <b>· Transport/Additional information:</b>                                       | Not dangerous according to the above specifications. |
| <b>· UN "Model Regulation":</b>  | Void   |

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

**· Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

**· Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

**· TSCA (Toxic Substances Control Act):**

7732-18-5 | water, distilled, conductivity or of similar purity

ACTIVE

**· Hazardous Air Pollutants**

None of the ingredients is listed.

**· Proposition 65**

None of the ingredients is listed.

**· Chemicals known to cause cancer:**

None of the ingredients is listed.

**· Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

**· Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

**· Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

**· Cancerogenity categories**

**· EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**· TLV (Threshold Limit Value)**

None of the ingredients is listed.

**· NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

**· GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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**Trade name: Solution C**  
**for CSF Silver Staining Kit**

(Contd. of page 6)

- **Hazard pictograms** GHS07
- **Signal word** Warning
- **Hazard statements**  
Causes serious eye irritation.
- **Precautionary statements**  
Wash thoroughly after handling.  
Wear protective gloves/protective clothing/eye protection/face protection.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.
- **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 SDS:** Product Safety Department
- **Contact:** +49 6221 13840-35
- **Date of preparation / last revision** 09/29/2023
- **Abbreviations and acronyms:**  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 ICAO: International Civil Aviation Organisation  
 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  
 bw: body weight  
 ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 VOC: Volatile Organic Compounds (USA, EU)  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Formaldehyde solution 37%
- **Article number:** 43834
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

**SERVA**  
■ serving scientists ■

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06

Acute Toxicity - Dermal 3

H311 Toxic in contact with skin.

Acute Toxicity - Inhalation 3

H331 Toxic if inhaled.



GHS08

Germ Cell Mutagenicity 2

H341 Suspected of causing genetic defects.

Carcinogenicity 1B

H350 May cause cancer.

Specific Target Organ Toxicity - Single Exposure 1 H370 Causes damage to organs.



GHS05

Skin Corrosion 1B

H314 Causes severe skin burns and eye damage.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms:** GHS05, GHS06, GHS07, GHS08

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Printing date 09/29/2023

Reviewed on 09/29/2023

**Trade name: Formaldehyde solution 37%**

(Contd. of page 1)

· **Signal word:** *Danger*

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

*formaldehyde*

*methanol*

· **Hazard statements:**

*Harmful if swallowed.*

*Toxic in contact with skin or if inhaled.*

*Causes severe skin burns and eye damage.*

*May cause an allergic skin reaction.*

*Suspected of causing genetic defects.*

*May cause cancer.*

*Causes damage to organs.*

*May cause respiratory irritation.*

· **Precautionary statements**

*Do not breathe mist/vapours/spray.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*If swallowed: Immediately call a poison center/doctor.*

*If on skin: Wash with plenty of soap and water.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



*Health = 3*

*Fire = 0*

*Reactivity = 0*

· **HMIS-ratings (scale 0 - 4)**



*Health = \*3*

*Fire = 0*

*Reactivity = 0*

· **Other hazards**

· **Results of PBT and vPvB assessment:**

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

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

### \* 3 Composition/information on ingredients

· **Chemical characterization:** *Mixtures*

· **Description:** *aqueous solution*

· **Dangerous components:**

50-00-0	formaldehyde	37%
67-56-1	methanol	5-15%

· **Additional information:**

*the product contains no further substances which shall be indicated according to REACH-Regulation (Regulation (EC) No. 1907/2006).*

*For the wording of the listed hazard phrases refer to section 16.*

### \* 4 First-aid measures

· **Description of first aid measures**

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

(Contd. on page 3)

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Reviewed on 09/29/2023

**Trade name: Formaldehyde solution 37%**

(Contd. of page 2)

- **After skin contact:**  
Immediate wash with copious amounts of water and soap; rinse thoroughly; seek medical advice.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:**  
Rinse mouth immediately. Drink plenty of water and fresh air. Call a doctor immediately.  
Do not induce vomiting!
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with eyes and skin.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

50-00-0	formaldehyde	0.90 ppm
67-56-1	methanol	530 ppm

· **PAC-2:**

50-00-0	formaldehyde	14 ppm
67-56-1	methanol	2,100 ppm

· **PAC-3:**

50-00-0	formaldehyde	56 ppm
67-56-1	methanol	7200* ppm

· **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

- **Precautions for safe handling:**  
Avoid contact with eyes and skin.  
Ensure good ventilation/exhaustion at the workplace.

(Contd. on page 4)



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**Trade name: Formaldehyde solution 37%**

(Contd. of page 3)

Open and handle receptacle with care.

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

Keep ignition sources away - Do not smoke.

Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.

· **Information about storage in one common storage facility:** 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.

Store container tightly closed and dry.

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

## 8 Exposure controls/personal protection

· **Control parameters**

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

**50-00-0 formaldehyde (37%)**

PEL Short-term value: 2 ppm  
Long-term value: 0.75 ppm  
see 29 CFR 1910.1048(c)

REL Long-term value: 0.016 ppm  
Ceiling limit value: 0.1\* ppm  
\*15-min; See Pocket Guide App. A

TLV Short-term value: 0.3 ppm  
Long-term value: 0.1 ppm  
DSEN; RSEN, A1

**67-56-1 methanol (5-15%)**

PEL Long-term value: 260 mg/m<sup>3</sup>, 200 ppm

REL Short-term value: 325 mg/m<sup>3</sup>, 250 ppm  
Long-term value: 260 mg/m<sup>3</sup>, 200 ppm  
Skin

TLV Short-term value: 250 ppm  
Long-term value: 200 ppm  
Skin; BEI

· **Ingredients with biological limit values:**

**67-56-1 methanol (5-15%)**

BEI 15 mg/L  
Medium: urine  
Time: end of shift  
Parameter: Methanol (background, nonspecific)

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

· **Exposure controls**

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

· **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.

(Contd. on page 5)

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**Trade name: Formaldehyde solution 37%**

(Contd. of page 4)

- **Breathing equipment:**  
Short term filter device:  
Filter P3
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Protective gloves  
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:**  
Rubber gloves  
PVA gloves
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing

## \* 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information:**
- **Color:** Colorless
- **Odor:** Pungent
- **Odor threshold:** Not determined.
- **Melting point/Melting range:** No information available
- **Boiling point/Boiling range:** No information available
- **Flammability (solid, gaseous):** No information available
- **Explosion limits:**
- **Lower:** No information available
- **Upper:** No information available
- **Flash point:** No information available
- **Decomposition temperature:** No information available
- **Viscosity:**
- **Kinematic viscosity:** No information available
- **Dynamic viscosity:** No information available
- **Solubility in / Miscibility with:**
- **Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** No information available
- **Vapor pressure:** No information available
- **Vapor pressure:**
- **Density:** No information available
- **Relative density:** No information available
- **Other information** Further physicochemical data are not available.

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

Trade name: Formaldehyde solution 37%

(Contd. of page 5)

- **Appearance:**
- **Form:** Solution
- **Important information on protection of health and environment, and on safety:**
- **Danger of explosion:** Not determined.
- **Solvent content:**
- **Organic solvents:** 52.0 %
- **VOC %:**
- **VOC content:** 52.00 %

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant information available.
- **Conditions to avoid:** heat, flames and sparks
- **Incompatible materials:** Avoid contact with strong oxidizers, reducing agents, strong acids, strong bases.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity:**  
Harmful if swallowed.  
Toxic in contact with skin or if inhaled.
  - **LD/LC50 values that are relevant for classification:**
- |                             |                       |
|-----------------------------|-----------------------|
| <b>50-00-0 formaldehyde</b> |                       |
| Oral                        | LD50 >200 mg/kg (rat) |
- **on the skin:** Causes severe skin burns and eye damage.
  - **Sensitization:** May cause an allergic skin reaction.
  - **Germ cell mutagenicity:** Suspected of causing genetic defects.
  - **Carcinogenicity:** May cause cancer.
  - **Specific target organ toxicity - single exposure:**  
Causes damage to organs.  
May cause respiratory irritation.
  - **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

50-00-0	formaldehyde	I
---------	--------------	---

- **NTP (National Toxicology Program)**

50-00-0	formaldehyde	K
---------	--------------	---

- **OSHA-Ca (Occupational Safety & Health Administration)**

50-00-0	formaldehyde	
---------	--------------	--

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.

(Contd. on page 7)

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**Trade name: Formaldehyde solution 37%**



(Contd. of page 6)

- **Mobility in soil:** No further relevant information available.
  - **Results of PBT and vPvB assessment:**
  - **PBT:** Not applicable.
  - **vPvB:** Not applicable.
  - **Other adverse effects:**
  - **Additional ecological information:**
  - **General notes:**
- Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 2 (Self-assessment): hazardous for water

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Dispose of in accordance with official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |   |                               |
|---|-------------------------------|
| <b>· UN-Number</b>  | UN2209                        |
| <b>· DOT, ADR, IMDG, IATA</b>   |                               |
| <b>· UN proper shipping name</b>  | Formaldehyde solutions        |
| <b>· DOT</b>  | 2209 FORMALDEHYDE SOLUTION    |
| <b>· ADR</b>  | FORMALDEHYDE SOLUTION         |
| <b>· IMDG, IATA</b>   |                               |
| <b>· Transport hazard class(es)</b>   |                               |
| <b>· DOT</b>  |                               |
|  |                               |
| <b>· Class</b>  | 8 Corrosive substances        |
| <b>· Label</b>  | 8                             |
| <b>· ADR, IMDG, IATA</b>  |                               |
|  |                               |
| <b>· Class:</b>   | 8 Corrosive substances        |
| <b>· Label:</b>   | 8                             |
| <b>· Packing group</b>  | III                           |
| <b>· DOT, ADR, IMDG, IATA</b>   |                               |
| <b>· Environmental hazards</b>  |                               |
| <b>· Marine pollutant:</b>  | No                            |
| <b>· Special precautions for user</b>   | Warning: Corrosive substances |

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Reviewed on 09/29/2023

Trade name: Formaldehyde solution 37%

(Contd. of page 7)

· <b>Hazard identification number (Kemler code):</b>	80
· <b>EMS Number:</b>	F-A,S-B
· <b>Stowage Category</b>	A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 2209 FORMALDEHYDE SOLUTION, 8, III

## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**

50-00-0	formaldehyde
---------	--------------

· **Section 313 (Specific toxic chemical listings):**

50-00-0	formaldehyde
---------	--------------

67-56-1	methanol
---------	----------

· **TSCA (Toxic Substances Control Act):**

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

50-00-0	formaldehyde
---------	--------------

67-56-1	methanol
---------	----------

· **Proposition 65**

None of the ingredients is listed.

· **Chemicals known to cause cancer:**

50-00-0	formaldehyde
---------	--------------

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

67-56-1	methanol
---------	----------

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

50-00-0	formaldehyde	B1
---------	--------------	----

· **TLV (Threshold Limit Value)**

50-00-0	formaldehyde	A2
---------	--------------	----

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Reviewed on 09/29/2023

**Trade name: Formaldehyde solution 37%**

(Contd. of page 8)

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

50-00-0 formaldehyde

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms** GHS05, GHS06, GHS07, GHS08

· **Signal word** Danger

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

formaldehyde

methanol

· **Hazard statements**

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause cancer.

Causes damage to organs.

May cause respiratory irritation.

· **Precautionary statements**

Do not breathe mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Immediately call a poison center/doctor.

If on skin: Wash with plenty of soap and water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **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 SDS:** Product Safety Department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 09/29/2023

· **Abbreviations and acronyms:**

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

ICAO: International Civil Aviation Organisation

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

bw: body weight

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

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**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 09/29/2023

Reviewed on 09/29/2023

**Trade name: Formaldehyde solution 37%**

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*LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**BEI: Biological Exposure Limit**Acute Toxicity - Oral 4: Acute toxicity – Category 4**Acute Toxicity - Dermal 3: Acute toxicity – Category 3**Skin Corrosion 1B: Skin corrosion/irritation – Category 1B**Sensitization - Skin 1: Skin sensitisation – Category 1**Germ Cell Mutagenicity 2: Germ cell mutagenicity – Category 2**Carcinogenicity 1B: Carcinogenicity – Category 1B**Specific Target Organ Toxicity - Single Exposure 1: Specific target organ toxicity (single exposure) – Category 1*

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Glycine for Solution E
- **Article number:** 43835
- **CAS Number:**  
56-40-6
- **EC number:**  
200-272-2
- **Application of the substance / the mixture:** Laboratory chemicals
- **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
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)

**SERVA**  
■ serving scientists ■

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
The substance is not classified, according to the Globally Harmonized System (GHS).

- **Label elements**
- **GHS label elements:** Void
- **Hazard pictograms:** Void
- **Signal word:** Void
- **Hazard statements:** Void
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - Assessment not available.
- **vPvB:** vPvB - Assessment not available.

US

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# Safety Data Sheet

acc. to OSHA HCS

Printing date 09/29/2023

Reviewed on 09/29/2023

Trade name: Glycine for Solution E

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### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**  
56-40-6 glycine
- **Identification number(s):**
- **EC number:** 200-272-2

### 4 First-aid measures

- **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:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. In case of complaints, consult an ophthalmologist.
- **After swallowing:** Rinse out mouth. In case of complaints, consult a doctor.
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Pick up mechanically.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

Substance is not listed.

- **PAC-2:**

Substance is not listed.

- **PAC-3:**

Substance is not listed.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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**Trade name: Glycine for Solution E**

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See Section 13 for disposal information.

## 7 Handling and storage

- **Precautions for safe handling:** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

- **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.
- **Exposure controls**
- **Additional information about design of technical systems:** No further data; see section 7.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Store protective clothing separately.
  - Immediately remove all soiled and contaminated clothing.
  - Avoid contact with the eyes and skin.
  - Wash hands before breaks and at the end of work.
- **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.
- **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

- **Information on basic physical and chemical properties**
- **General Information:**
- **Color:** white to almost white
- **Odor:** Odorless
- **Odor threshold:** Not determined.

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Trade name: Glycine for Solution E

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· <b>Melting point/Melting range:</b>	<234 °C (<453.2 °F)
· <b>Boiling point/Boiling range:</b>	No information available
· <b>Flammability (solid, gaseous):</b>	No information available
· <b>Explosion limits:</b>	
· <b>Lower:</b>	No information available
· <b>Upper:</b>	No information available
· <b>Flash point:</b>	No information available
· <b>Auto igniting:</b>	no information available
· <b>Decomposition temperature:</b>	> 233 °C
· <b>pH-value:</b>	5.9-6.4
· <b>Viscosity:</b>	
· <b>Kinematic viscosity:</b>	No information available
· <b>Dynamic viscosity:</b>	No information available
· <b>Solubility in / Miscibility with:</b>	
· <b>Water:</b>	Soluble.
· <b>Partition coefficient (n-octanol/water):</b>	No information available
· <b>Vapor pressure:</b>	No information available
· <b>Vapor pressure:</b>	
· <b>Density at 20 °C (68 °F):</b>	1.16 g/cm <sup>3</sup> (9.6802 lbs/gal)
· <b>Relative density:</b>	Not determined.

· <b>Other information</b>	
· <b>Appearance:</b>	
· <b>Form:</b>	Crystalline
· <b>Important information on protection of health and environment, and on safety:</b>	
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>VOC content:</b>	0.00 %
· <b>Molecular weight</b>	75.1 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:**  
As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- **Conditions to avoid:** Avoid high temperatures, flames, sparks
- **Incompatible materials:**  
Avoid contact with:  
Oxidizing agents  
organic solvents
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.

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**Trade name: Glycine for Solution E**

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- **Specific target organ toxicity - single exposure:**  
Based on available data, the classification criteria are not met.
- **Specific target organ toxicity - repeated exposure:**  
Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
- **Carcinogenic categories**

· <b>IARC (International Agency for Research on Cancer)</b>
---

Substance is not listed.
--------------------------

· <b>NTP (National Toxicology Program)</b>
--

Substance is not listed.
--------------------------

· <b>OSHA-Ca (Occupational Safety &amp; Health Administration)</b>
--

Substance is not listed.
--------------------------

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:**  
Acute aquatic toxicity, EC50/48h to *Daphnia magna* (OECD Test Guideline 202): > 220 mg/l  
Chronic aquatic toxicity, NOEC/14d to microorganisms (OECD Test Guideline 301C): ≥100 mg/l
- **Persistence and degradability:**  
Biodegradability, degradation rate/14d (OECD Test Guideline 301C): 76-82%
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (Assessment by list): slightly hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |                                     |      |
|-------------------------------------|------|
| · <b>UN-Number</b>                  | Void |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>  | Void |
| · <b>UN proper shipping name</b>    | Void |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>  | Void |
| · <b>Transport hazard class(es)</b> | Void |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>  | Void |
| · <b>Class</b>                      | Void |

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Trade name: Glycine for Solution E

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· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	Void
· <b>Environmental hazards</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	Not dangerous according to the above specifications.
· <b>UN "Model Regulation":</b>	Void

## 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

· **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

· **TSCA (Toxic Substances Control Act):**

ACTIVE

· **Hazardous Air Pollutants**

Substance is not listed.

· **Proposition 65**

Substance is not listed.

· **Chemicals known to cause cancer:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

· **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

· **Chemicals known to cause developmental toxicity:**

Substance is not listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **TLV (Threshold Limit Value)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements** Void

· **Hazard pictograms** Void

· **Signal word** Void

· **Hazard statements** Void

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

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Reviewed on 09/29/2023

**Trade name: Glycine for Solution E**

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## 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 SDS:** Product Safety Department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 09/29/2023

· **Abbreviations and acronyms:**

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

*ICAO: International Civil Aviation Organisation*

*PBT: persistent, bioaccumulative, toxic substance (REACH)*

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*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*NIOSH: National Institute for Occupational Safety*

*OSHA: Occupational Safety & Health*

*TLV: Threshold Limit Value*

*PEL: Permissible Exposure Limit*

*REL: Recommended Exposure Limit*