

## **SERVA HPE™ Silver Staining Kit**

**Cat. No. 43395**

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

|                  |   |
|------------------|---|
| 43814            | Citric Acid   |
| 43815 /<br>43813 | Sodium Thiosulfate /<br>Sodium Thiosulfate dry substance for Solution E |
| 23391            | Glycine   |
| 43807            | Formaldehyde 37 % solution in water                                     |
| 43808            | Glutaraldehyde 25 % solution in water                                   |
| 43809            | Solution A  |
| 43810            | Solution B  |
| 43811            | Solution C  |
| 43812            | Solution D  |

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/13/2023

Reviewed on 02/13/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Citric Acid
- **Article number:** 43814
- **CAS Number:**  
5949-29-1
- **EC number:**  
201-069-1
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

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## 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 substance 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 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

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Trade name: Citric Acid

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## · HMIS-ratings (scale 0 - 4)

|            |   |                |
|------------|---|----------------|
| HEALTH     | 2 | Health = 2     |
| FIRE       | 0 | Fire = 0       |
| REACTIVITY | 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: Substances

### · CAS No. Description:

5949-29-1 Citric acid monohydrate

### · Identification number(s):

· **EC number:** 201-069-1

### · Description:

· **Empirical formula:**  $C_6H_8O_7 \cdot H_2O$

· **MW:** 210.1 g/mol

## 4 First-aid measures

### · Description of first aid measures

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

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

### · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

### · After swallowing:

Rinse out mouth and then drink plenty of water.

Seek medical advice if discomfort occurs.

· **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:

$CO_2$  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 respiratory protective device.

## 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 item 13.

Pick up mechanically.

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Trade name: Citric Acid

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## · 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.

See Section 13 for disposal information.

## 7 Handling and storage

- **Precautions for safe handling:** Avoid contact with eyes and skin.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **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:** Keep receptacle tightly sealed and store in dry conditions.
- **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 item 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.  
Avoid contact with the eyes.
- **Breathing equipment:**  
Short term filter device:  
Filter P2
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves:**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

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Trade name: Citric Acid

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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.
- **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
- **Odor:** Odorless
- **Odor threshold:** Not determined.
- **Melting point/Melting range:** 135-152 °C (275-305.6 °F)
- **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
- **Ignition temperature:** 345 °C (653 °F)
- **Decomposition temperature:** no information available
- **pH-value:** 1.8
- **Viscosity:**
- **Kinematic viscosity:** no information available
- **Dynamic viscosity:** no information available
- **Solubility in / Miscibility with:**
- **Water at 25 °C (77 °F):** 675 g/l
- **Partition coefficient (n-octanol/water):** no information available
- **Vapor pressure:** Not applicable.
- **Density at 20 °C (68 °F):** 1.54 g/cm<sup>3</sup> (12.8513 lbs/gal)
- **Relative density:** Not determined.
- **Other information**
- **Appearance:**
- **Form:** Crystalline
- **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 %
- **Molecular weight** 210.1 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant informations available
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:**  
Possibility of hazardous reactions in contact with:  
reducing agents  
strong oxidizing agents  
strong bases
- **Conditions to avoid:** Avoid high temperatures, flames, sparks

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Trade name: Citric Acid

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- **Incompatible materials:**  
Avoid contact with:  
Oxidizers  
reducing agents  
strong bases
- **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:**

5949-29-1 Citric acid monohydrate

|      |      |                   |
|------|------|-------------------|
| Oral | LD50 | 3,000 mg/kg (rat) |
|------|------|-------------------|

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

- **Carcinogenic categories**

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

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Other information:** The product is readily biodegradable.
- **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**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

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**Trade name: Citric Acid**

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· **Uncleaned packagings:**· **Recommendation:**

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

## 14 Transport information

· **UN-Number**· **DOT, ADR, ADN, IMDG, IATA** Void· **UN proper shipping name**· **DOT, ADR, ADN, IMDG, IATA** Void· **Transport hazard class(es)**· **DOT, ADR, ADN, IMDG, IATA**· **Class** Void· **Packing group**· **DOT, ADR, IMDG, IATA** Void· **Environmental hazards**· **Marine pollutant:** No· **Special precautions for user**

Not applicable.

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

Not applicable.

· **Transport/Additional information:**

Not dangerous according to the above specifications.

· **UN "Model Regulation":**

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):**

Substance is not listed.

· **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.

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**Trade name: Citric Acid**

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· **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**

The substance 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 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** 02/13/2023

· **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

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

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



# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Sodium Thiosulfate
- **Article number:** 43813, 43815
- **CAS Number:**  
7772-98-7
- **EC number:**  
231-867-5
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

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## 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)**
- |            |   |                |
|------------|---|----------------|
| HEALTH     | 0 | Health = 0     |
| FIRE       | 0 | Fire = 0       |
| REACTIVITY | 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:** Substances
- **CAS No. Description:**  
7772-98-7 sodium thiosulphate

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Reviewed on 02/10/2023

Trade name: Sodium Thiosulfate

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- **Identification number(s):**
- **EC number:** 231-867-5

## 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:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:** Wash out mouth. Seek medical advice if discomfort occurs.
- **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 respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation
- **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 item 13.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** 38 mg/m<sup>3</sup>
- **PAC-2:** 410 mg/m<sup>3</sup>
- **PAC-3:** 2,500 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:** No special measures required.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **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:** Keep receptacle tightly sealed and store in dry conditions.

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Reviewed on 02/10/2023

Trade name: Sodium Thiosulfate

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- **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 item 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
  - Nitrile rubber, NBR
- **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:** 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
- **Ignition temperature:** no information available
- **Decomposition temperature:** Not determined.
- **Viscosity:**
- **Kinematic viscosity:** no information available
- **Dynamic viscosity:** no information available

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Trade name: Sodium Thiosulfate

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- **Solubility in / Miscibility with:**
- **Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** no information available
- **Vapor pressure:** no information available
- **Density:** Not determined.
- **Relative density:** no information available

- **Other information**
- **Appearance:**
- **Form:** Solid
- **Important information on protection of health and environment, and on safety:**
- **Danger of explosion:** no information available
- **Molecular weight** 158.11 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:**  
Hazardous reactions possible in contact with:  
strong oxidizing agents  
acids
- **Conditions to avoid:** high temperatures
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No further relevant informations available.

## 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.
- **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**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not 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.

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Trade name: Sodium Thiosulfate

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- **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**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |  |                 |
|--|-----------------|
| · <b>UN-Number</b>   |                 |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void            |
| · <b>UN proper shipping name</b>   |                 |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void            |
| · <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>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.

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**Trade name: Sodium Thiosulfate**

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- **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.

### 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** 02/10/2023

- **Abbreviations and acronyms:**

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

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

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

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

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

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

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Glycine
- **Article number:** 23391
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

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## 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)**



Health = 0  
Fire = 0  
Reactivity = 0

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



Health = 0  
Fire = 0  
Reactivity = 0

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



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Reviewed on 02/10/2023

Trade name: Glycine

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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
- **Description:**
- **Empirical formula:**  $C_2H_5NO_2$
- **MW:** 75.1

## 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:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:**  
Wash out mouth. Drink plenty of water and supply fresh air. Seek medical advice if discomfort occurs.  
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:**  
 $CO_2$  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 (NOx)  
Carbon monoxide and carbon dioxide  
Ammonia (NH<sub>3</sub>)
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid formation of dust.
- **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 item 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.

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Trade name: Glycine

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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 measures required.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **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:** Keep receptacle tightly sealed and store in dry conditions.
- **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 item 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

US

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Trade name: Glycine

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## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

|  |   |
|--|---|
| · Color:                                   | White                                   |
| · Odor:                                    | Odorless                                |
| · 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:               | > 233 °C                                |
| · pH-value:                                | 5.9-6.4                                 |
| · Viscosity:                               |   |
| · Kinematic viscosity:                     | no information available                |
| · Dynamic viscosity:                       | no information available                |
| · Solubility in / Miscibility with:        |   |
| · Water at 20 °C (68 °F):                  | min. 5 g/l                              |
| · Partition coefficient (n-octanol/water): | Not determined.                         |
| · Vapor pressure:                          | Not applicable.                         |
| · Density at 20 °C (68 °F):                | 1.16 g/cm <sup>3</sup> (9.6802 lbs/gal) |
| · Relative density:                        | Not determined.                         |

#### · Other information

##### · Appearance:

· Form: Crystalline

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

· Danger of explosion: Product is not explosive. However, formation of explosive dust-/air mixtures are possible.

· Molecular weight 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:** No further relevant informations available.

· **Conditions to avoid:** No further relevant information available.

· **Incompatible materials:**

Avoid contact with:

Strong acids

strong bases

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:** 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.

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Trade name: Glycine

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- **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.
- **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**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not 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 (Assessment by list): slightly hazardous for water

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- |                                     |      |
|-------------------------------------|------|
| · <b>UN-Number</b>                  |      |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>  | Void |
| · <b>UN proper shipping name</b>    |      |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>  | Void |
| · <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 |

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Trade name: Glycine

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|  |  |
|--|--|
| · <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.

### 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** 02/10/2023
- **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
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)

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

Printing date 02/10/2023

Reviewed on 02/10/2023

**Trade name: Glycine**

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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*

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Formaldehyde solution 37%
- **Article number:** 43807, 400053
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

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## 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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# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

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

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Printing date 02/10/2023

Reviewed on 02/10/2023

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 under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist immediately.
- **After swallowing:**  
Wash out mouth instantly. Drink copious amounts of water and provide fresh air. Call for 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 respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with the 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 item 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.

(Contd. on page 4)



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Trade name: Formaldehyde solution 37%

(Contd. of page 3)

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:** 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.

Keep receptacle tightly sealed and store in dry conditions.

· **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 item 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)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

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
- **Density:** no information available
- **Relative density:** no information available
- **Other information** There are no more data available.
- **Appearance:**
- **Form:** Solution

(Contd. on page 6)

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Trade name: Formaldehyde solution 37%

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- **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 informations available
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant informations 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:**
- 50-00-0 formaldehyde
- 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.
- **Mobility in soil:** No further relevant information available.

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Trade name: Formaldehyde solution 37%



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- **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:**
- Disposal must be made according to official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
  - **Recommendation:**
- Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **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 |
| · <b>Hazard identification number (Kemler code):</b>                                | 80                            |

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Trade name: Formaldehyde solution 37%

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|  |  |
|--|--|
| · <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<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml |
| · <b>IMDG</b>  |  |
| · <b>Limited quantities (LQ)</b>   | 5L   |
| · <b>Excepted quantities (EQ)</b>  | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>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

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

50-00-0 formaldehyde

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**Trade name: Formaldehyde solution 37%**

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- **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** 02/10/2023

- **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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

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**Trade name: Formaldehyde solution 37%**

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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  
BEL: 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

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## 1 Identification

- **Product identifier**
- **Trade name:** Glutaraldehyde 25 % solution in water
- **Article number:** 23115, 43808
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

**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

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

glutaral

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Trade name: Glutaraldehyde 25 % solution in water

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- **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.

· **After inhalation:** Supply fresh air and to be sure call for a doctor.

· **After skin contact:**

Immediate wash with copious amounts of water and soap; rinse thoroughly; seek medical advice.

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Trade name: Glutaraldehyde 25 % solution in water

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- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist immediately.
- **After swallowing:**  
Wash 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**  
Formation of dangerous gases or vapours is possible 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 respiratory protective device.
- **Additional information**  
Collect contaminated fire fighting agent separately. It must not enter the sewage system.  
Dispose of fire debris and contaminated fire fighting media in accordance with official regulations.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with the 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 item 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

### · PAC-1:

|          |          |         |
|----------|----------|---------|
| 111-30-8 | glutaral | 0.2 ppm |
|----------|----------|---------|

### · PAC-2:

|          |          |       |
|----------|----------|-------|
| 111-30-8 | glutaral | 1 ppm |
|----------|----------|-------|

### · PAC-3:

|          |          |       |
|----------|----------|-------|
| 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.

## 7 Handling and storage

- **Precautions for safe handling:**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.

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Trade name: Glutaraldehyde 25 % solution in water

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- **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 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 under lock and key and with access restricted to technical experts or their assistants only.  
Keep receptacle tightly sealed and store in dry conditions.
- **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<br>See Pocket Guide App. C |
| TLV | Ceiling limit value: 0.05 ppm<br>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 item 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 A/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.

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- **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>               | 3-4                      |
| · <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>                                   | Fully miscible.          |
| · <b>Partition coefficient (n-octanol/water):</b> | no information available |
| · <b>Vapor pressure:</b>                          | no information available |
| · <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>  | no information available |
| · <b>VOC %:</b>  |                          |
| · <b>VOC content:</b>  | 0.00 %                   |

## 10 Stability and reactivity

- **Reactivity:** No further relevant informations 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:  
Oxidizers, acids, bases  
Amines

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Trade name: Glutaraldehyde 25 % solution in water

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· **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.

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

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Trade name: Glutaraldehyde 25 % solution in water

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## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **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 solution)
- **ADR** 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral solution), ENVIRONMENTALLY HAZARDOUS
- **IMDG, IATA** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (glutaral solution)
- **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
- **Label** 6.1/8
- **IATA**
- 
- **Class** 6.1 Toxic substances

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|  |  |
|--|--|
| · <b>Label</b>   | 6.1 (8)  |
| · <b>Packing group</b>   |  |
| · <b>DOT, ADR, IMDG, IATA</b>  | II   |
| · <b>Environmental hazards</b>   | Product contains environmentally hazardous substances: glutaral  |
| · <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<br>Maximum net quantity per inner packaging: 1 ml<br>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<br>Maximum net quantity per inner packaging: 1 ml<br>Maximum net quantity per outer packaging: 500 ml |
| · <b>UN "Model Regulation":</b>  | UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (GLUTARAL SOLUTION), 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.

· **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.

(Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 12/20/2022

Reviewed on 12/20/2022

Trade name: Glutaraldehyde 25 % solution in water

(Contd. of page 8)

· **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** 12/20/2022

· **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)

(Contd. on page 10)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 12/20/2022

Reviewed on 12/20/2022

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

(Contd. of page 9)

*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 02/10/2023

Reviewed on 02/10/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution A for SERVA HPE™ Silver Staining Kit
- **Article number:** 43809
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)



## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
The product 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.

## 3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** aqueous solution
- **Dangerous components:** Void

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

**Trade name:** Solution A for SERVA HPE™ Silver Staining Kit

(Contd. of page 1)

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

## 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:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:** Wash out mouth. Seek medical advice if discomfort occurs.
- **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 respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with the 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 item 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

### · PAC-1:

None of the ingredients is listed.

### · 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 measures required.

(Contd. on page 3)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

Trade name: **Solution A for SERVA HPE™ Silver Staining Kit**

(Contd. of page 2)

- **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:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed and store in dry conditions.
- **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 item 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.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.
- **Breathing equipment:** Suitable respiratory protective device recommended.
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
- **Material of gloves:**  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material:**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**  
Natural rubber, NR
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information:**
- **Color:** Colorless
- **Odor:** Characteristic
- **Odor threshold:** no information available

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

Trade name: Solution A for SERVA HPE™ Silver Staining Kit

(Contd. of page 3)

|  |   |
|--|---|
| · <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>Ignition temperature:</b>   | no information available                      |
| · <b>Decomposition temperature:</b>  | no information available                      |
| · <b>pH-value at 20 °C (68 °F):</b>  | 7.5-9.2                                       |
| · <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>Density:</b>  | no information available                      |
| · <b>Relative density:</b>   | no information available                      |
| · <b>Other information</b>   |   |
| · <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 informations available
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant informations available.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No further relevant informations available.

## 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.
- **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.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

Trade name: Solution A for SERVA HPE™ Silver Staining Kit

(Contd. of 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.

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

## 13 Disposal considerations

· **Waste treatment methods**

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

· **Uncleaned packagings:**

· **Recommendation:**

Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.

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

## 14 Transport information

· **UN-Number**

· **ADR, IMDG, IATA**

Void

· **UN proper shipping name**

· **ADR, IMDG, IATA**

Void

· **Transport hazard class(es)**

· **ADR, IMDG, IATA**

· **Class:**

Void

· **Label:**

-

· **Packing group**

· **ADR, IMDG, IATA**

Void

· **Environmental hazards**

· **Marine pollutant:**

No

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

Trade name: Solution A for SERVA HPE™ Silver Staining Kit

(Contd. of page 5)

- |  |  |
|--|--|
| · <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. |

## 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):**

None of the ingredients is listed.

- **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** Void

- **Hazard pictograms** Void

- **Signal word** Void

- **Hazard statements** Void

- **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** 02/10/2023

(Contd. on page 7)



# Safety Data Sheet

## acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

**Trade name: Solution A for SERVA HPE™ Silver Staining Kit**

(Contd. of page 6)

**· 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*

*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*

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution B for SERVA HPE™ Silver Staining Kit
- **Article number:** 43810
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)



## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
The product 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.

## 3 Composition/information on ingredients

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

### · **Dangerous components:**

|         |         |       |
|---------|---------|-------|
| 64-17-5 | ethanol | 5-15% |
|---------|---------|-------|

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

**Trade name: Solution B for SERVA HPE™ Silver Staining Kit**

(Contd. of page 1)

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

## 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:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.
- **After swallowing:** Wash out mouth. Seek medical advice if discomfort occurs.
- **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**  
Formation of dangerous gases or vapours is possible in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid contact with the 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 item 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

All components have the value 1,800 ppm.

- **PAC-2:**

All components have the value 3300\* ppm.

- **PAC-3:**

All components have the value 15000\* 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.

US  
(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/10/2023

Reviewed on 02/10/2023

Trade name: **Solution B for SERVA HPE™ Silver Staining Kit**

(Contd. of page 2)

## 7 Handling and storage

- **Precautions for safe handling:**  
No special measures required.  
Ensure good ventilation/exhaustion at the workplace.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **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:** Keep receptacle tightly sealed and store in dry conditions.
- **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:**

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

|     |  |
|-----|--|
| 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  |  |

- **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 item 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.
- **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

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# Safety Data Sheet

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- **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>                                    | Characteristic           |
| · <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>               | <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>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>  | Not determined. |
| · <b>VOC %:</b>  |                 |
| · <b>VOC content:</b>  | 0.00 %          |

### 10 Stability and reactivity

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

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- **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.
- **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**

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

All components have the value 1.

· **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:** Disposal must be made according to official regulations.
- **Uncleaned packagings:**
- **Recommendation:**  
Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |                                  |      |
|----------------------------------|------|
| · <b>UN-Number</b>               |      |
| · <b>ADR, IMDG, IATA</b>         | Void |
| · <b>UN proper shipping name</b> |      |
| · <b>ADR, IMDG, IATA</b>         | Void |

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- |  |  |
|--|--|
| · <b>Transport hazard class(es)</b>  |  |
| · <b>ADR, IMDG, IATA</b>   |  |
| · <b>Class:</b>  | Void   |
| · <b>Label:</b>  | -  |
| · <b>Packing group</b>   |  |
| · <b>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. |

## 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:**

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:**

All ingredients are listed.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

All components have the value A3.

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

None of the ingredients is listed.

· **GHS label elements** Void

· **Hazard pictograms** Void

· **Signal word** Void

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- **Hazard statements** Void
- **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** 02/10/2023
- **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*

*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*

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## 1 Identification

- **Product identifier**
- **Trade name:** Solution C for SERVA HPE™ Silver Staining Kit
- **Article number:** 43811
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)



## 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-determining components of labeling:**  
silver nitrate
- **Hazard statements:**  
Causes severe skin burns and eye damage.
- **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.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

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## · HMIS-ratings (scale 0 - 4)

|            |   |                |
|------------|---|----------------|
| HEALTH     | 3 | Health = 3     |
| FIRE       | 0 | Fire = 0       |
| REACTIVITY | 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:

|           |                |       |
|-----------|----------------|-------|
| 7761-88-8 | silver nitrate | 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.

### · After skin contact:

Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.

### · After eye contact:

Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist In case of complaints.

### · After swallowing:

Wash out the mouth and call a doctor.

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** No further relevant information available.

### · Advice for firefighters

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

### · Additional information

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

## 6 Accidental release measures

### · Personal precautions, protective equipment and emergency procedures

Wear protective clothing.

Ensure adequate ventilation

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Avoid contact with the 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 item 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> |
|-----------|----------------|-------------------------|

- **PAC-2:**

|           |                |                       |
|-----------|----------------|-----------------------|
| 7761-88-8 | silver nitrate | 0.9 mg/m <sup>3</sup> |
|-----------|----------------|-----------------------|

- **PAC-3:**

|           |                |                       |
|-----------|----------------|-----------------------|
| 7761-88-8 | silver nitrate | 5.4 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:**

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.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:** Keep receptacle tightly sealed and store in dry conditions.

- **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 item 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.

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.

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**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:**

Natural rubber, NR

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:**

- **Color:**

Colorless

- **Odor:**

Odorless

- **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

- **pH-value:**

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

- **Density:**

no information available

- **Relative density:**

no information available

- **Other information**

- **Appearance:**

- **Form:**

Solution

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

- **Danger of explosion:**

Product does not present an explosion hazard.

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- VOC %:
- VOC content: 0.00 %

### 10 Stability and reactivity

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

### 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**

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

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

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

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

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

|                                    |
|------------------------------------|
| 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:**
- Very toxic for aquatic organisms
- Water hazard class 3 (Self-assessment): extremely hazardous for water

### 13 Disposal considerations

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

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- **Uncleaned packagings:**
- **Recommendation:**  
Disposal of uncleaned packagings must be made according to official regulations in the same manner as the product.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |   |  |
|---|--|
| · <b>UN-Number</b><br>· <b>DOT, ADR, IMDG, IATA</b>   | UN3082   |
| · <b>UN proper shipping name</b><br>· <b>DOT</b><br>· <b>ADR</b><br>· <b>IMDG</b><br>· <b>IATA</b>  | Environmentally hazardous substance, liquid, n.o.s. (Silver nitrate)<br>3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE)<br>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE), MARINE POLLUTANT<br>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SILVER NITRATE solution) |
| · <b>Transport hazard class(es)</b><br>· <b>DOT, ADR, IMDG, IATA</b>  |  |
|             |  |
| · <b>Class</b><br>· <b>Label</b>  | 9 Miscellaneous dangerous substances and articles<br>9   |
| · <b>Packing group</b><br>· <b>DOT, ADR, IMDG, IATA</b>   | III  |
| · <b>Environmental hazards</b><br>· <b>Marine pollutant:</b><br>· <b>Special marking (ADR):</b><br>· <b>Special marking (IATA):</b>   | Product contains environmentally hazardous substances: silver nitrate<br>Yes<br>Symbol (fish and tree)<br>Symbol (fish and tree)<br>Symbol (fish and tree)   |
| · <b>Special precautions for user</b><br>· <b>Hazard identification number (Kemler code):</b><br>· <b>EMS Number:</b><br>· <b>Segregation groups</b><br>· <b>Stowage Category</b> | Warning: Miscellaneous dangerous substances and articles<br>90<br>F-A,S-F<br>(SGG7) Heavy metals and their salts (including their organometallic compounds)<br>A   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>  | Not applicable.  |
| · <b>Transport/Additional information:</b><br>· <b>DOT</b><br>· <b>Remarks:</b>   | Special marking with the symbol (fish and tree).   |

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|                                   |  |
|-----------------------------------|--|
| · <b>ADR</b>                      |  |
| · <b>Excepted quantities (EQ)</b> | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml |
| · <b>IMDG</b>                     |  |
| · <b>Limited quantities (LQ)</b>  | 5L   |
| · <b>Excepted quantities (EQ)</b> | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml |
| · <b>UN "Model Regulation":</b>   | UN 3082 ENVIRONMENTALLY HAZARDOUS<br>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.

- **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).

- **Hazard pictograms GHS05**

- **Signal word Danger**

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

silver nitrate

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- **Hazard statements**  
Causes severe skin burns and eye damage.
- **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.
- **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** 02/10/2023
- **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 02/13/2023

Reviewed on 02/13/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Solution D for SERVA HPE™ Silver Staining Kit
- **Article number:** 43812
- **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:**  
Medical Emergency Information in case of poisoning:  
Poison Information Center Mainz - Phone: +49 (0) 6131 19240  
(advisory service in German or English language)

**SERVA**  
serving scientists

## 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  
Fire = 0  
Reactivity = 0

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Trade name: Solution D for SERVA HPET<sup>TM</sup> Silver Staining Kit

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- **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:**

|          |                  |        |
|----------|------------------|--------|
| 497-19-8 | sodium carbonate | 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**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly. Consult doctor if you feel unwell.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. Remove present contact lenses, if easy to do, and continue rinsing. Consult ophthalmologist immediately.
- **After swallowing:** Wash out mouth. Seek medical advice if discomfort occurs.
- **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 respiratory protective device.

## 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 item 13.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **Protective Action Criteria for Chemicals**

### · **PAC-1:**

|          |                  |                       |
|----------|------------------|-----------------------|
| 497-19-8 | sodium carbonate | 7.6 mg/m <sup>3</sup> |
|----------|------------------|-----------------------|

### · **PAC-2:**

|          |                  |                      |
|----------|------------------|----------------------|
| 497-19-8 | sodium carbonate | 83 mg/m <sup>3</sup> |
|----------|------------------|----------------------|

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· **PAC-3:**

497-19-8 sodium carbonate

500 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:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed and store in dry conditions.
- **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 item 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.  
Avoid contact with the eyes.
- **Breathing equipment:**  
Short term filter device:  
Filter P2
- **Protection of hands:**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
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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- **Penetration time of glove material:**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**  
Natural rubber, NR
- **Eye protection:** Tightly sealed goggles
- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

- |   |                          |
|---|--------------------------|
| · <b>Color:</b>                                   | Colorless                |
| · <b>Odor:</b>                                    | Odorless                 |
| · <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>               | 11.1-12.1                |
| · <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>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 informations available
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** No further relevant informations available.
- **Conditions to avoid:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No further relevant informations available.

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# Safety Data Sheet

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### 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**

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

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

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

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

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

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

### 13 Disposal considerations

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

### 14 Transport information

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

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|  |  |
|--|--|
| · <b>Label:</b>  | -  |
| · <b>Packing group</b>   |  |
| · <b>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. |

## 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:**

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** GHS07

- **Signal word** Warning

- **Hazard statements**

Causes serious eye irritation.

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**Trade name: Solution D for SERVA HPET™ Silver Staining Kit**

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**· 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** 02/13/2023

· **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)

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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)

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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