

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.05.2024

Version number 4

Revision: 06.05.2024

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

- **1.1 Product identifier**
- **Trade name:** Dithiothreitol
- **Article number:** 39759
- **CAS Number:**
3483-12-3
- **EC number:**
222-468-7
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture:** Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety Department Tel.: +49 6221 13840-35
- **1.4 Emergency telephone number:**
Emergency medical information in case of poisoning
Poison Information Centre Mainz-Tel: +49 (0) 6131 19240
(Counselling in German and English)



SECTION 2: Hazards identification

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



GHS07

Acute Tox. 4 H302 Harmful if swallowed.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2 H319 Causes serious eye irritation.
 STOT SE 3 H335 May cause respiratory irritation.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008:**
The substance is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms:** GHS07
- **Signal word:** Warning
- **Hazard statements:**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
- **Precautionary statements**

P261	Avoid breathing dust.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.

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*P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.**P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*· **Labelling of packages where the contents do not exceed 125 ml**· **Hazard pictograms** GHS07· **Signal word** Warning· **Hazard statements** Void· **Precautionary statements***P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.**P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.**P302+P352 IF ON SKIN: Wash with plenty of soap and water.**P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*· **2.3 Other hazards**· **Results of PBT and vPvB assessment:**· **PBT:** PBT - Assessment not available.· **vPvB:** vPvB - Assessment not available.· **Determination of endocrine-disrupting properties** No further relevant information available.

SECTION 3: Composition/information on ingredients

· **3.1 Substances**· **CAS No. Description:***3483-12-3 (R*,R*)-1,4-dimercaptobutane-2,3-diol*· **Identification number(s):**· **EC number:** 222-468-7· **Description:**· **Empirical formula:** $C_4H_{10}O_2S_2$ · **MW:** 154.25 g/mol

SECTION 4: First aid measures

· **4.1 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.*· **After inhalation:** Supply fresh air; consult doctor in case of complaints.· **After skin contact:***Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.*· **After eye contact:***Rinse opened eye for several minutes with running water. Remove contact lenses if possible and continue rinsing. Consult an ophthalmologist immediately.*· **After swallowing:** Rinse out mouth. In case of complaints, consult a doctor.· **4.2 Most important symptoms and effects, both acute and delayed***No further relevant information available.*· **4.3 Indication of any immediate medical attention and special treatment needed***No further relevant information available.*

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**· **Suitable extinguishing agents:***CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

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- **5.2 Special hazards arising from the substance or mixture:**
Formation of hazardous vapours and gases possible during heating or in case of fire.
In case of fire, the following can be formed, but not limited to:
Sulphur oxides (SO_x)
Carbon monoxide and carbon dioxide
- **5.3 Advice for firefighters**
- **Protective equipment:** *Wear self-contained breathing apparatus.*

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Ensure adequate ventilation
Avoid formation of dust.
Avoid contact with eyes and skin.
- **6.2 Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*
- **6.3 Methods and material for containment and cleaning up**
Dispose contaminated material as waste according to section 13.
Pick up mechanically.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling:** *Ensure good ventilation/exhaustion at the workplace.*
- **Information about protection against explosions and fires:** *Keep ignition sources away - Do not smoke.*
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** *Storage at +2 to +8 °C*
- **Information about storage in one common storage facility:** *Not required.*
- **Further information about storage conditions:**
This product is hygroscopic.
Store containers tightly closed and dry.
- **7.3 Specific end use(s):** *No further relevant information available.*

SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Components with limit values that require monitoring at the workplace:** *Not required.*
- **Additional information:** *The lists that were valid during the creation were used as basis.*
- **8.2 Exposure controls**
- **Appropriate engineering controls:** *No further data; see section 7.*
- **Individual protection measures, such as 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:

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*Filter P2.**In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.***· Hand protection:***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/face protection:** *Safety glasses***· Body protection:** *Protective work clothing.***SECTION 9: Physical and chemical properties****· 9.1 Information on basic physical and chemical properties****· General Information:****· Physical state:***Solid.***· Colour:***White***· Odour:***Characteristic***· Odour threshold:***Not determined.***· Melting point/freezing point:***40-45 °C***· Boiling point or initial boiling point and boiling range:***125-130 °C***· Flammability:***No information available***· Lower and upper explosion limit:****· Lower:***No information available***· Upper:***No information available***· Flash point:***>109 °C***· Decomposition temperature:***No information available***· pH:***No information available***· Viscosity:****· Kinematic viscosity:***No information available***· Dynamic viscosity:***No information available***· Solubility:****· Water at 20 °C:***1500 g/l***· Partition coefficient n-octanol/water (log value):***No information available***· Vapour pressure:***No information available***· Density and/or relative density:****· Density:***No information available***· Relative density:***No information available***· Particle characteristics***No information available***· 9.2 Other information****· Appearance:****· Form:***needles*

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

· **Explosive properties:**

The product is not explosive, but the formation of explosive dust/air mixtures is possible.

· **Molecular weight**

154.24 g/mol

SECTION 10: Stability and reactivity

· **10.1 Reactivity:** No further relevant information available.

· **10.2 Chemical stability:**

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

· **10.3 Possibility of hazardous reactions:**

As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion

· **10.4 Conditions to avoid:**

Humidity

High temperatures

· **10.5 Incompatible materials:** Avoid contact with strong oxidizers.

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

SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:**

· **Acute toxicity:** Harmful if swallowed.

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

Oral	LD50	400 mg/kg (rat)
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· **Skin corrosion/irritation:** Causes skin irritation.

· **Serious eye damage/irritation:** Causes serious eye irritation.

· **Respiratory or skin sensitisation:** 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.

· **STOT-single exposure:** May cause respiratory irritation.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

· **11.2 Information on other hazards:**

· **Endocrine disrupting properties:** No relevant information available

SECTION 12: Ecological information

· **12.1 Toxicity:**

· **Aquatic toxicity:**

EC50/48h	27 mg/l (Daphnia magna)
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· **12.2 Persistence and degradability:** No further relevant information available.

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

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

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

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

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

· **12.6 Endocrine disrupting properties:** For information on endocrine disrupting properties see section 11.

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- **12.7 Other adverse effects:**
- **Additional ecological information:**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water.

SECTION 13: Disposal considerations

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

SECTION 14: Transport information

- | | |
|---|--|
| · 14.1 UN number or ID number | Void |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.2 UN proper shipping name | Void |
| · ADR, ADN, IMDG, IATA | Void |
| · 14.3 Transport hazard class(es) | Void |
| · ADR, ADN, IMDG, IATA | Void |
| · Class: | Void |
| · 14.4 Packing group | Void |
| · ADR, IMDG, IATA | Void |
| · 14.5 Environmental hazards | Not applicable. |
| · 14.6 Special precautions for user | Not applicable. |
| · 14.7 Maritime transport in bulk according to IMO instruments | Not applicable. |
| · Transport/Additional information: | Not dangerous according to the above specifications. |
| · UN "Model Regulation": | Void |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Poisons Act**
- **Regulated explosives precursors** Substance is not listed.
- **Regulated poisons** Substance is not listed.
- **Reportable explosives precursors** Substance is not listed.
- **Reportable poisons** Substance is not listed.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
Substance is not listed.

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- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS** (Upper limit value for the purpose of licensing under Article 5(3))
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
- **Regulation (EC) No 273/2004 on drug precursors** Substance is not listed.
- **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
Substance is not listed.
- **National regulations:**
- **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 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 previous version:** 02.05.2018
- **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 (UK REACH)
 - vPvB: very persistent, very bioaccumulative substance (UK REACH)
 - UK REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
 - GB 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
 - GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - Acute Tox. 4: Acute toxicity – Category 4
 - Skin Irrit. 2: Skin corrosion/irritation – Category 2
 - Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
 - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

GB