

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/06/2024

Reviewed on 05/06/2024

1 Identification

- **Product identifier**
- **Trade name:** Dithiothreitol
- **Article number:** 20710
- **CAS Number:**
3483-12-3
- **EC number:**
222-468-7
- **Application of the substance / the mixture:** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
SERVA Electrophoresis GmbH
Carl-Benz-Str. 7
D-69115 Heidelberg
Tel.: +49 6221 13840-0
FAX: +49 6221 13840-10
msds.info@serva.de
- **Information department:** Product Safety Department Tel.: +49 6221 13840-35
- **Emergency telephone number:**
Emergency medical information in case of poisoning
Poison Information Center Mainz-Tel: +49 (0) 6131 19240
(Advice in German and English)

SERVA
■ serving scientists ■

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS07

Acute Toxicity - Oral 4	H302 Harmful if swallowed.
Skin Irritation 2	H315 Causes skin irritation.
Eye Irritation 2A	H319 Causes serious eye irritation.
Specific Target Organ Toxicity - Single Exposure 3	H335 May cause respiratory 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:**

Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

- **Precautionary statements**

Avoid breathing dust.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a poison center/doctor if you feel unwell.
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.

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



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

HEALTH	2	Health = 2
FIRE	1	Fire = 1
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:**
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

4 First-aid measures

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

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
 CO_2 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 hazardous vapors and gases possible during heating or in case of fire.
In case of fire, the following can be released:
Sulfur oxides (SOx)
Carbon monoxide and carbon dioxide

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- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 - Wear protective clothing.
 - Ensure adequate ventilation
 - Avoid formation of dust.
 - Avoid contact with eyes and skin.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**
 - Dispose contaminated material as waste according to section 13.
 - Pick up mechanically.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** Substance is not listed.
- **PAC-2:** Substance is not listed.
- **PAC-3:** Substance is not listed.
- **Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - 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:** Keep ignition sources away - Do not smoke.
- **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 container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Additional information about design of technical systems:** No further data; see section 7.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Keep away from foodstuffs, beverages and feed.
 - Store protective clothing separately.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes and skin.
- **Breathing equipment:**
 - Short term filter device:
 - Filter P2

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· **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:**

White

· **Odor:**

Characteristic

· **Odor threshold:**

Not determined.

· **Melting point/Melting range:**

40-45 °C (104-113 °F)

· **Boiling point/Boiling range:**

125-130 °C (257-266 °F)

· **Flammability (solid, gaseous):**

No information available

· **Explosion limits:**

· **Lower:**

No information available

· **Upper:**

No information available

· **Flash point:**

>109 °C (>228.2 °F)

· **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 at 20 °C (68 °F):**

1500 g/l

· **Partition coefficient (n-octanol/water):**

No information available

· **Vapor pressure:**

No information available

· **Vapor pressure:**

· **Density:**

No information available

· **Relative density:**

No information available

· **Other information**

· **Appearance:**

· **Form:**

needles

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

· **Danger of explosion:**

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

· **Molecular weight**

154.24 g/mol

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10 Stability and reactivity

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

11 Toxicological information

- **Information on toxicological effects**
 - **Acute toxicity:** Harmful if swallowed.
- | | | |
|---|------|-----------------|
| · LD/LC50 values that are relevant for classification: | | |
| Oral | LD50 | 400 mg/kg (rat) |
- **on the skin:** Causes skin irritation.
 - **on the eye:** Causes serious eye irritation.
 - **Specific target organ toxicity - single exposure:** May cause respiratory 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: | |
| EC50/48h | 27 mg/l (Daphnia magna) |
- **Persistence and degradability:** No further relevant information available.
 - **Bioaccumulative potential:** No further relevant information available.
 - **Mobility in soil:** No further relevant information available.
 - **Results of PBT and vPvB assessment:**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
 - **Other adverse effects:**
 - **Additional ecological information:**
 - **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Water hazard class 2 (Assessment by list): hazardous for water

13 Disposal considerations

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

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

14 Transport information

- | | |
|--|--|
| · UN-Number
· DOT, ADR, ADN, IMDG, IATA | Void |
| · UN proper shipping name
· DOT, ADR, ADN, IMDG, IATA | Void |
| · Transport hazard class(es)
· DOT, ADR, ADN, IMDG, IATA
· Class | Void |
| · Packing group
· DOT, ADR, IMDG, IATA | Void |
| · Environmental hazards | Not applicable. |
| · 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):** 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**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS07
- **Signal word** Warning
- **Hazard statements**
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

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· **Precautionary statements**

Avoid breathing dust.

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

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

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.

· **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** 05/06/2024

· **Abbreviations and acronyms:**

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

ICAO: International Civil Aviation Organisation

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

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

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

bw: body weight

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)

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

Skin Irritation 2: Skin corrosion/irritation – Category 2

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

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