

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

Printing date 26.12.2023

Version number 4 (replaces version 3)

Revision: 12.07.2023

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

· **1.1 Product identifier**

· **Trade name:** *D,L-Dithiothreitol*

· **Chemical Identification:** (R\*,R\*)-1,4-dimercaptobutane-2,3-diol

· **Article number:** 0448

· **EC number:**  
222-468-7

· **Registration number**

*A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.*

· **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**

*Chemical for research, development, manufacturing, laboratory chemical for analysis.*

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

· **Manufacturer/Supplier:**

*Biosolve Chimie  
20 Rue Roger Husson, 57260 Dieuze, France  
Tel: +33 3 878 675 80/81/82/83/84/85  
Email: info@biosolvechimie.com*

*Biosolve B.V.  
Leenderweg 78, 5555 CE Valkenswaard, the Netherlands.  
Tel: +31-(0)40-2071300  
Fax: +31-(0)40-2048537  
Email: info@biosolve-chemicals.com*

· **Further information obtainable from:** *Product safety department.*

· **1.4 Emergency telephone number:**

*Contact list of appointed bodies for information relating to emergency health response, according to Art. 45(1) Reg. (EC) No 1272/2008.*

*See below section 16 or at <https://poisoncentres.echa.europa.eu/home>.*

*Help desk: <http://echa.europa.eu/web/guest/support/helpdesks/national-helpdesks/list-of-national-helpdesks>.*

*Data from: ECHA - EUROPEAN CHEMICALS AGENCY*

*For more information see section 16.*

**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.*

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Eye Irrit. 2 H319 Causes serious eye irritation.

· **2.2 Label elements**

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

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

· **Hazard pictograms**



GHS07

· **Signal word** Warning

· **Hazard statements**

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

· **Precautionary statements**

P280 Wear eye protection / face protection.

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

P330 Rinse mouth.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

· **3.1 Substances**

· **CAS No. Description**

D,L-Dithiothreitol

· **Identification number(s)**

· **EC number:** 222-468-7

**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:** In case of unconsciousness place patient stably in side position for transportation.

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- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Call for a doctor immediately.
- **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:** Use fire extinguishing methods suitable to surrounding conditions.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:** 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** Store in cool, dry place in tightly closed receptacles.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Store at 2 - 8 °C.  
Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.

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· **Additional information:** The lists valid during the making 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.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Respiratory protection:** Not required.

· **Hand protection**

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



Protective gloves

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

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.

· **Eye/face protection**



Tightly sealed goggles

**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:**

No data available.

· **Melting point/freezing point:**

40-44 °C

· **Boiling point or initial boiling point and boiling range**

Undetermined.

· **Flammability**

Product is not flammable.

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- **Lower and upper explosion limit**
- **Lower:** No data available
- **Upper:** No data available
- **Flash point:** 113 °C
- **Decomposition temperature:** No data available
- **pH** 5.1
- **Viscosity:**
- **Dynamic:** Not applicable.
- **Solubility**
- **water at 20 °C:** 15.4 g/l
- **Partition coefficient n-octanol/water (log value)** No data available
- **Vapour pressure:** Not applicable.
- **Density and/or relative density**
- **Density:** Not determined.
- **Relative density** No data available
- **Vapour density** Not applicable.
- **Particle characteristics**
- See section 3.

- **9.2 Other information**
- **Appearance:**
- **Form:** Solid
- **Important information on protection of health and environment, and on safety.**
- **Ignition temperature:** No data available
- **Explosive properties:** Product does not present an explosion hazard.
- **Molecular weight** 154.24 g/mol
- **Change in condition**
- **Evaporation rate** Not applicable.

- **Information with regard to physical hazard classes**
- **Explosives** Void
- **Flammable gases** Void
- **Aerosols** Void
- **Oxidising gases** Void
- **Gases under pressure** Void
- **Flammable liquids** Void
- **Flammable solids** Void
- **Self-reactive substances and mixtures** Void
- **Pyrophoric liquids** Void
- **Pyrophoric solids** Void
- **Self-heating substances and mixtures** Void
- **Substances and mixtures, which emit flammable gases in contact with water** Void
- **Oxidising liquids** Void
- **Oxidising solids** Void
- **Organic peroxides** Void
- **Corrosive to metals** Void

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· **Desensitised explosives** Void

**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** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

**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 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** Based on available data, the classification criteria are not met.
- **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** Substance is not listed.

**SECTION 12: Ecological information**

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**
- The product does not contain substances with endocrine disrupting properties.

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- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water  
 Do not allow product to reach ground water, water course or sewage system.  
 Danger to drinking water if even small quantities leak into the ground.*

**SECTION 13: Disposal considerations**


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

· **European waste catalogue**

HP4	Irritant - skin irritation and eye damage
HP6	Acute Toxicity

- **Uncleaned packaging:**
- **Recommendation:** *Disposal must be made according to official regulations.*

**SECTION 14: Transport information**

· <b>14.1 UN number or ID number</b> · <b>ADR, ADN, IMDG</b> · <b>IATA</b>	Void UN3335
· <b>14.2 UN proper shipping name</b> · <b>ADR, ADN, IMDG</b> · <b>IATA</b>	Void Aviation regulated solid, n.o.s. (D,L-Dithiothreitol)
· <b>14.3 Transport hazard class(es)</b> · <b>ADR, ADN, IMDG</b> · <b>Class</b> · <b>IATA</b>	Void
	
· <b>Class</b> · <b>Label</b>	9 Miscellaneous dangerous substances and articles. 9
· <b>14.4 Packing group</b> · <b>ADR, IMDG</b> · <b>IATA</b>	Void III

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- |   |                 |
|---|-----------------|
| · <b>14.5 Environmental hazards:</b>                                  |                 |
| · <b>Marine pollutant:</b>  | No              |
| · <b>14.6 Special precautions for user</b>                            | Not applicable. |
| · <b>14.7 Maritime transport in bulk according to IMO instruments</b> | Not applicable. |

**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **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.
- **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.
- **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:**  
Austria German Vergiftungsinformationszentrale 01 406 43 43 <http://www.goeg.at/de/VIZ>  
Belgium French Centre antipoison 070 245 245 <http://www.centreantipoisons.be>  
Dutch Antigif centrum 070 245 245 <http://www.antigifcentrum.be>  
German Giftinformationszentrum 070 245 245 <http://www.poissoncentre.be>  
Bulgaria\* Bulgarian Токсикологични центрове 02 9154 411 <https://pirogov.eu/bg>  
Croatia\* Croatian Centar za kontrolu otrovanja +385 1 2348 342 <https://www.imi.hr/en/jedinica/poison-control-centre>  
Czech Rep Czech Toxikologické informační středisko +420 224 91 92 93; +420 224 91 54 02 <http://www.tis-cz.cz>  
Denmark Danish Giftlinien +45 8212 1212 <https://www.bispebjerghospital.dk/giftlinien>  
Estonia Estonian Mürgistusteabekeskus 16662; +372 7943 794 <https://www.16662.ee>  
Finland Finnish Myrkytystietokeskus 0800 147 111; +358 9 471 977 <http://www.hus.fi/sairaanhoito/sairaanhoitopalvelut/myrkytystietokeskus/Sivut/default.aspx>

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France French Angers +33 2 41 48 21 21 <http://www.centres-antipoison.net/angers/index.html>  
 Bordeaux +33 5 56 96 40 80 <http://www.centres-antipoison.net/bordeaux/index.html>  
 Lille +33 0800 59 59 59 <http://www.centres-antipoison.net/lille/index.html>  
 Lyon +33 4 72 11 69 11 <http://www.centres-antipoison.net/lyon/index.html>  
 Marseille +33 4 91 75 25 25 <http://www.centres-antipoison.net/marseille/index.html>  
 Nancy +33 3 83 22 50 50 <http://www.centres-antipoison.net/nancy/index.html>  
 Paris +33 1 40 05 48 48 <http://www.centres-antipoison.net/paris/index.html>  
 Strasbourg +33 3 88 37 37 37 <http://www.centres-antipoison.net/strasbourg/index.html>  
 Toulouse +33 5 61 77 74 47 <http://www.centres-antipoison.net/toulouse/index.html>  
 Germany German Berlin +49 30 19240 <https://giftnotruf.charite.de>  
 Bonn +49 228 19240 <http://www.gizbonn.de/index.php?id=272>  
 Erfurt +49 361 730730 <https://www.ggiz-erfurt.de/home.html>  
 Freiburg +49 761 19240 <https://www.uniklinik-freiburg.de/giftberatung.html>  
 Göttingen +49 551 19240 <https://www.giz-nord.de/cms/index.php>  
 Homburg/Saar +49 6841 19240 [http://www.uniklinikumsaarland.de/de/einrichtungen/kliniken\\_institute/kinder\\_und\\_jugendmedizin/informations\\_und\\_behandlungszentrum\\_fuer\\_vergiftungen\\_des\\_saarlandes](http://www.uniklinikumsaarland.de/de/einrichtungen/kliniken_institute/kinder_und_jugendmedizin/informations_und_behandlungszentrum_fuer_vergiftungen_des_saarlandes)  
 Mainz +49 6131 19240 <http://www.giftinfo.uni-mainz.de/index.php?id=24807>  
 München +49 89 19240 <http://www.toxinfo.med.tum.de>  
 Greece Greek κέντρο δηλητηριάσεων +30 213 200 9000 <http://www.aglaiakyriakou.gr/>; <http://0317.syzefxis.gov.gr>  
 Hungary Hungarian Egészségügyi Toxikológiai Tájékoztató Szolgálat +36 6 80 20 11 99; +36 06 1 476 6464 <http://www.okbi.hu/page.php?trid=1&dz=103>  
 Italy Italian Bergamo +39 800 88 33 00 [http://www.asst-pg23.it/section/259/Tossicologia\\_-\\_Centro\\_antiveneni](http://www.asst-pg23.it/section/259/Tossicologia_-_Centro_antiveneni)  
 Firenze +39 55 794 78 19 <http://www.antiveneni.altervista.org>  
 Milano +39 2 661 01 029 <http://www.centroantiveneni.org>  
 Pavia +39 382 244 44 <http://www-3.unipv.it/reumatologia-tossicologia/cav>  
 Napoli +39 81 747 28 70  
 Foggia +39 881 732 326  
 Roma +39 6 685 93 726 / +39 6 499 78 000 / +39 6 305 43 43 <http://www.corso-primo-soccorso-roma.it/centri/antiveneno-lazio.html>  
 Ireland English Poisons information Centre of Ireland +353 1 809 21 66 <http://www.poisons.ie/Public>  
 Latvia\* Latvian Saindēšanās informācijas centri +371 670 00 610 <https://www.aslimnica.lv/lv>  
 Russian Латвия +371 67000610 <https://www.aslimnica.lv/lv>  
 Lithuania Lithuanian Apsinuodijimų informacijos biuras + 370 5 236 20 52 <http://www.apsinuodijau.lt>  
 Luxembourg German Giftinformationszentrum +49 800 255 00 <http://www.poisoncentre.be>  
 French Centre antipoison +352 800 255 00 <http://www.centreantipoisons.be>  
 Netherlands Dutch 31 (0)88 755 8 <https://www.productnotificatie.nl>  
 Norway Norwegian Giftinformasjonen +47 22 59 13 00 <https://helsenorge.no/Giftinformasjon>  
 Poland Polish Kraków +48 12 411 99 99 <http://www.oit.cm.uj.edu.pl>  
 Gdansk +48 58 682 04 04 <http://www.pctox.pl/news.php>  
 Poznań +48 61 847 69 46 [http://www.raszeja.poznan.pl/oddzialy/oddzial\\_toksykologiczny](http://www.raszeja.poznan.pl/oddzialy/oddzial_toksykologiczny)  
 Warszawa +48 607 218 174 [okzit@burdpi.pol.pl](mailto:okzit@burdpi.pol.pl)  
 Portugal Portuguese Centro de Informação Antivenenos +351 808 250 143 <http://www.inem.pt>  
 Romania Romanian CNMRMC +40 213 183 606 [infotox@insp.gov.ro](mailto:infotox@insp.gov.ro)  
 Spitalul Clinic de Urgenta Bucuresti +40 215 992 300 int. 291  
[spital@urgentaflorasca.ro](mailto:spital@urgentaflorasca.ro)

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Spitalul Clinic Judetean de Urgenta Targu Mures +40 265.212.111

secretariat@spitjudms.ro

Russia Russian Горячая линия Министерства здравоохранения +7 495 628 4453; +7 495 627 2944  
<http://rospotrebnadzor.ru>

Serbia Serbian Nacionalni centar za kontrolu trovanja +381 11 3608 440 <http://www.vma.mod.gov.rs/sr-lat/specijalnosti/centri/nacionalni-centar-za-kontrolu-trovanja>

Slovak Rep Slovak Národné toxikologické informačné centrum +421 2 5477 4166 <http://www.ntic.sk>

Spain Spanish Servicio de Información Toxicológica +34 91 562 04 20 [https://www.administraciondejusticia.gob.es/paj/publico/ciudadano/informacion\\_institucional/organismos/instituto\\_nacional\\_de\\_toxicologia\\_y\\_ciencias\\_fo/renses/servicios/info\\_toxicologica/que\\_es\\_sit/lut/p/c5/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3g\\_A1cjCydDRwMDUwNLA08nwzAvM0czA\\_8gM6B8pFm8maeqrqWdQsImJcaiLiYGncViYa4CHR4GBiQExuglwAEdCusNBrsWpwsLUACKPy3WuRvjlg83wy5sQ0G8CtRP\\_\\_w88nNT9QtyQyMMMMj0zA9IVFQH Y 1 8 1 4 / d 1 3 / d 3 / L2dJQSEvUU3QS9ZQnZ3LzZfTjBFMjhCMUEwMDUwOTBJQjFWSjZBNjBPTjA!/?itemId=45381](https://www.administraciondejusticia.gob.es/paj/publico/ciudadano/informacion_institucional/organismos/instituto_nacional_de_toxicologia_y_ciencias_fo/renses/servicios/info_toxicologica/que_es_sit/lut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3g_A1cjCydDRwMDUwNLA08nwzAvM0czA_8gM6B8pFm8maeqrqWdQsImJcaiLiYGncViYa4CHR4GBiQExuglwAEdCusNBrsWpwsLUACKPy3WuRvjlg83wy5sQ0G8CtRP__w88nNT9QtyQyMMMMj0zA9IVFQH Y 1 8 1 4 / d 1 3 / d 3 / L2dJQSEvUU3QS9ZQnZ3LzZfTjBFMjhCMUEwMDUwOTBJQjFWSjZBNjBPTjA!/?itemId=45381)

Sweden Swedish Giftinformationscentralen +46 10 456 6700 <https://giftinformation.se>

Switzerland German Giftinformationszentrum 145 <http://toxinfo.ch>

French Centre antipoison 145 <http://toxinfo.ch>

Italian Centro Antiveleni 145 <http://toxinfo.ch>

United Kingdom English NHS Helpline 111 NHS Helpline - England and Wales: <http://www.nhs.uk/NHSEngland/AboutNHSservices/Emergencyandurgentcareservices/Pages/NHS-111.aspx>

· **Date of previous version:** 19.10.2022

· **Version number of previous version:** 3

· **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)

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

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