



SIGMA-ALDRICH

Material Safety Data Sheet

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Section 1 - Product and Company Information

Product Name DL-Dithiothreitol, minimum 99% titration
Product Number D0632
Brand Sigma Chemical
Company Sigma-Aldrich
Street Address 3050 Spruce Street
City, State, Zip, Country SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052
Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
1,4-DITHIOTHREITOL	3483-12-3	No	222-468-7	

Formula C₄H₁₀O₂S₂
Synonyms 2,3-Butanediol, 1,4-dimercapto-, (R*,R*)- (9CI), Cleland reagent, D-threo-1,4-Dimercapto-2,3-butanediol, (R*,R*)-1,4-Dimercapto-2,3-butanediol, 1,4-Dithiothreitol, D-1,4-Dithiothreitol, Sputolysin, Threitol, 1,4-dithio-, WR 34678

Section 3 - Hazards Identification

Emergency Overview
Toxic (USA) Harmful (EU).
Harmful if swallowed. Irritating to eyes, respiratory system and skin.
Unpleasant odor. Target organ(s): Central nervous system.

HMIS Rating
Health: 2* Flammability: 1 Reactivity: 1

NFPA Rating
Health: 2 Flammability: 1 Reactivity: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Flash Point: 235 °F 113 °C

Autoignition Temp: N/A

Extinguishing Media

Suitable
Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed In Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

Storage

Suitable

Keep tightly closed. Store at 2-8°C

Special Requirements

Store under inert gas. Moisture sensitive.

Section 8 - Exposure Controls / PPE

Engineering Controls

Mechanical exhaust required. Safety shower and eye bath.

Personal Protective Equipment

Respiratory

Government approved respirator.

Hand

Compatible chemical-resistant gloves.

Eye

Chemical safety goggles.

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General Hygiene Measures
Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color	Form	Odor
	Solid	White	Powder	Unpleasant odor.
Molecular Weight: 154.25 AMU				
pH 4.0 - 6.0				
BP/BP Range N/A				
MP/MP Range 42 - 44 °C				
Freezing Point N/A				
Vapor Pressure N/A				
Vapor Density N/A				
Saturated Vapor Conc. N/A				
SG/Density N/A				
Bulk Density N/A				
Odor Threshold N/A				
Volatile% N/A				
VOC Content N/A				
Water Content N/A				
Solvent Content N/A				
Evaporation Rate N/A				
Viscosity N/A				
Partition Coefficient N/A				
Decomposition Temp. N/A				
Flash Point °F 235 °F				
Flash Point °C 113 °C				
Explosion Limits N/A				
Flammability N/A				
Autoignition Temp N/A				
Solubility				
Solubility in Water: 0.1 M in H ₂ O, 20°C				
Solvent: complete, colorless				

N/A = not available

Section 10 - Stability and Reactivity

Stability
Stable.
Stable.
Conditions of Instability
May decompose on exposure to moist air or water.
Materials to Avoid
Bases, Oxidizing agents, Reducing agents, Alkali metals.

Hazardous Decomposition Products
Hazardous Decomposition Products
Carbon monoxide, Carbon dioxide, Sulfur oxides, Hydrogen sulfide gas.

Hazardous Polymerization
Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Route of Exposure
Skin Contact
Causes skin irritation.
Skin Absorption
May be harmful if absorbed through the skin.
Eye Contact
Causes eye irritation.
Inhalation
May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.
Ingestion
Harmful if swallowed.

Target Organ(s) or System(s)
Central nervous system.

Signs and Symptoms of Exposure
Exposure can cause: Nausea, headache, and vomiting. CNS depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: EK1610000

Toxicity Data

Oral - Rat: 400 mg/kg(LD50)
Oral - Rat: 400 mg/kg(LD50)
Intraperitoneal - Mouse: 154 MG/KG (LD50)
Intramuscular - Mouse: 108 MG/KG (LD50)
Remarks: Behavioral:Convulsions or effect on seizure threshold.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation
Contact a licensed professional waste disposal service to dispose of this material.
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA
Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU Additional Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements R: 22 36/37/38

Harmful if swallowed. Irritating to eyes, respiratory system and skin.

Safety Statements S: 26 36

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Classification and Label Text

Indication of Danger

Toxic (USA) Harmful (EU).

Risk Statements

Harmful if swallowed. Irritating to eyes, respiratory system and skin.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Statements

Unpleasant odor. Target organ(s): Central nervous system.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For manufacturing use only.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

