



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US OSHA Hazard Communication Standard (29 CFR 1910.1200)

Revision date 30-Apr-2025

Revision Number 1.4

## 1. Identification

### Product identifier

Product Name Dithiothreitol (DTT)

### Other means of identification

Catalog Number(s) 1610610, 1610611, 1610610EDU, 1610611EDU, 10013901

### Recommended use of the chemical and restrictions on use

Recommended use Laboratory chemicals

Restrictions on use No information available

### Details of the supplier of the safety data sheet

#### Corporate Headquarters

Bio-Rad Laboratories Inc.  
1000 Alfred Nobel Drive  
Hercules, CA 94547  
USA

#### Manufacturer Address

Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

Bio-Rad Laboratories  
Life Science  
2000 Alfred Nobel Drive  
Hercules, California 94547

Technical Service 1-800-424-6723  
support@bio-rad.com

### Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC USA: 1 (800) 424-9300

## 2. Hazard(s) identification

### Classification of the substance or mixture

|                                   |            |
|-----------------------------------|------------|
| Acute toxicity - Oral             | Category 4 |
| Skin corrosion/irritation         | Category 2 |
| Serious eye damage/eye irritation | Category 2 |

### Hazards not otherwise classified (HNOC)

Not applicable

### Label elements



Warning

### Hazard statements

Harmful if swallowed.  
Causes skin irritation.  
Causes serious eye irritation.

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves, protective clothing, eye protection and 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.  
IF ON SKIN: Wash with plenty of water and soap.  
If skin irritation occurs: Get medical advice/attention.  
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.  
Rinse mouth.

**Precautionary Statements - Disposal**

Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

**Hazards classified under paragraph (d)(1)(ii) of 1910.1200**

No information available.

**Other information**

Toxic to aquatic life.

**3. Composition/information on ingredients****Substance**

| Chemical name                             | CAS No.   | Weight-% | Trade secret |
|---|-----------|----------|--------------|
| 2,3-Butanediol, 1,4-dimercapto-, (R*,R*)- | 3483-12-3 | 50 - 100 | *            |

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

**4. First-aid measures****Description of first aid measures**

|   |   |
|---|---|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance.  |
| <b>Inhalation</b>                         | Remove to fresh air. Get medical attention immediately if symptoms occur.   |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists. |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.  |
| <b>Ingestion</b>                          | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.   |
| <b>Self-protection of the first aider</b> | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).   |

**Most important symptoms and effects, both acute and delayed**

**Symptoms** May cause redness and tearing of the eyes. Burning sensation.

**Effects of Exposure** No information available.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Treat symptomatically.

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

**Specific hazards arising from the chemical** No information available.

**Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Pick up and transfer to properly labeled containers.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. Handling and storage

**Precautions for safe handling**

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**General hygiene considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store according to product and label instructions.

## 8. Exposure controls/personal protection

### Working area parameters, subject to mandatory control (MAC or TSEL)

**Exposure Limits** This product, as supplied, contains materials that do not have reportable occupational exposure limits or are not subject to the reporting requirements of the local jurisdiction.

**Biological occupational exposure limits** This product, as supplied, contains materials that do not have reportable biological exposure limits or are not subject to the reporting requirements of the local jurisdiction.

### Appropriate engineering controls

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** If splashes are likely to occur, wear safety glasses with side-shields.

**Hand protection** Wear suitable gloves. Impervious gloves.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing.

**Respiratory protection** Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

**Appearance** Powder  
**Physical state** Solid  
**Color** white  
**Odor (includes odor threshold)** Sulfurous

| <u>Property</u>                                | <u>Values</u>     | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| <b>pH</b>                                      |                   | None known              |
| <b>Melting point / freezing point</b>          | 42 °C / 107.6 °F  |                         |
| <b>Initial boiling point and boiling range</b> | 110 °C / 230 °F   |                         |
| <b>Flash point</b>                             | No data available | None known              |
| <b>Evaporation rate</b>                        | No data available | None known              |
| <b>Flammability</b>                            | No data available | None known              |
| <b>Flammability Limit in Air</b>               |                   | None known              |
| <b>Upper flammability or explosive limits</b>  | No data available |                         |
| <b>Lower flammability or explosive limits</b>  | No data available |                         |
| <b>Vapor pressure</b>                          | No data available | None known              |
| <b>Relative vapor density</b>                  | No data available | None known              |
| <b>Relative density</b>                        | No data available | None known              |

|                           |                   |            |
|---------------------------|-------------------|------------|
| Water solubility          | Soluble in water  |            |
| Solubility(ies)           | No data available | None known |
| Partition coefficient     | No data available | None known |
| Autoignition temperature  | No data available | None known |
| Decomposition temperature | No data available | None known |
| Kinematic viscosity       | No data available | None known |
| Dynamic viscosity         | No data available | None known |

Other information**10. Stability and reactivity**

|                                    |  |
|------------------------------------|--|
| Reactivity                         | No information available.                            |
| Chemical stability                 | Stable under normal conditions.                      |
| Possibility of hazardous reactions | None under normal processing.                        |
| Conditions to avoid                | None known based on information supplied.            |
| Incompatible materials             | Strong acids. Strong bases. Strong oxidizing agents. |
| Hazardous decomposition products   | None known based on information supplied.            |

Information on likely routes of exposure

## Product Information

|              |   |
|--------------|---|
| Inhalation   | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.  |
| Eye contact  | Specific test data for the substance or mixture is not available. Causes serious eye irritation (based on components). May cause redness, itching, and pain.                                  |
| Skin contact | Specific test data for the substance or mixture is not available. Causes skin irritation (based on components).   |
| Ingestion    | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed (based on components). |

Symptoms related to the physical, chemical and toxicological characteristics

|                                |   |
|--------------------------------|---|
| Symptoms                       | Redness. May cause redness and tearing of the eyes. |
| Acute toxicity                 | Harmful if swallowed.                               |
| Numerical measures of toxicity | No information available.                           |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                           |   |
|---------------------------|---|
| Skin corrosion/irritation | Classification based on data available for ingredients. Causes skin irritation. |
|---------------------------|---|

|  |  |
|--|--|
| <b>Serious eye damage/eye irritation</b> | Classification based on data available for ingredients. Causes serious eye irritation. |
| <b>Respiratory or skin sensitization</b> | No information available.  |
| <b>Germ cell mutagenicity</b>            | No information available.  |
| <b>Carcinogenicity</b>                   | No information available.  |
| <b>Reproductive toxicity</b>             | No information available.  |
| <b>STOT - single exposure</b>            | No information available.  |
| <b>STOT - repeated exposure</b>          | No information available.  |
| <b>Aspiration hazard</b>                 | No information available.  |
| <b>Other adverse effects</b>             | No information available.  |
| <b>Interactive effects</b>               | No information available.  |

## 12. Ecological information

|                                      |                                    |
|--------------------------------------|------------------------------------|
| <b>Ecotoxicity</b>                   | Toxic to aquatic life.             |
| <b>Persistence and degradability</b> | No information available.          |
| <b>Bioaccumulation</b>               | There is no data for this product. |
| <b>Other adverse effects</b>         | No information available.          |

## 13. Disposal considerations

### Disposal methods

|  |   |
|--|---|
| <b>Waste from residues/unused products</b> | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b>Contaminated packaging</b>              | Do not reuse empty containers.  |

## 14. Transport information

|                   |               |
|-------------------|---------------|
| <u>DOT</u>        | Not regulated |
| <u>TDG</u>        | Not regulated |
| <u>MEX</u>        | Not regulated |
| <u>ICAO (air)</u> | Not regulated |
| <u>IATA</u>       | Not regulated |
| <u>IMDG</u>       | Not regulated |

## 15. Regulatory information

### International Regulations

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

**International Inventories** Contact supplier for inventory compliance status

### US Federal Regulations

#### **TSCA**

All chemical components are listed on the TSCA Inventory.

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

#### **SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

#### **CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

#### **CAA (Clean Air Act)**

This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

#### **CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### US State Regulations

#### **California Proposition 65**

This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

This product does not contain any substances regulated under applicable state right-to-know regulations

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

**16. Other information**

|             |                         |                       |                           |                              |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| <b>NFPA</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Instability</b> 0      | <b>Special hazards</b> -     |
| <b>HMIS</b> | <b>Health hazards</b> 0 | <b>Flammability</b> 0 | <b>Physical hazards</b> 0 | <b>Personal protection</b> - |

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

|                |   |
|----------------|---|
| <b>ADN</b>     | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| <b>ADR</b>     | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)             |
| <b>ATE</b>     | Acute Toxicity Estimate   |
| <b>ASTM</b>    | American Society for the Testing of Materials   |
| <b>BEL</b>     | Biological exposure limits  |
| <b>bw</b>      | Body weight   |
| <b>Ceiling</b> | Maximum limit value   |
| <b>CMR</b>     | Carcinogen, Mutagen or Reproductive Toxicant  |
| <b>DOT</b>     | Department of Transportation (United States)  |
| <b>EmS</b>     | Emergency Schedule  |
| <b>EPA</b>     | Environmental Protection Agency   |
| <b>GHS</b>     | Globally Harmonized System  |
| <b>HMIS</b>    | Hazardous Materials Identification System   |
| <b>IATA</b>    | International Air Transport Association   |
| <b>ICAO</b>    | International Civil Aviation Organization   |
| <b>IMDG</b>    | International Maritime Dangerous Goods  |
| <b>IMO</b>     | International Maritime Organization   |
| <b>ISO</b>     | International Organization for Standardization  |
| <b>LC50</b>    | Lethal Concentration to 50% of a test population  |
| <b>LD50</b>    | Lethal Dose to 50% of a test population (Median Lethal Dose)                                    |
| <b>MARPOL</b>  | International Convention for the Prevention of Pollution from Ships                             |
| <b>NFPA</b>    | National Fire Protection Association  |
| <b>NIOSH</b>   | National Institute for Occupational Safety and Health   |
| <b>n.o.s.</b>  | Not Otherwise Specified   |
| <b>NOAEL</b>   | No Observed Adverse Effect Level  |
| <b>OECD</b>    | Organization for Economic Cooperation and Development   |
| <b>OEL</b>     | Occupational exposure limits  |
| <b>OSHA</b>    | Occupational Safety and Health Administration of the US Department of Labor                     |
| <b>PBT</b>     | Persistent, Bioaccumulative and Toxic substance   |
| <b>PMT</b>     | Persistent, Mobile and Toxic  |
| <b>PPE</b>     | Personal protective equipment   |
| <b>RID</b>     | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)             |
| <b>SARA</b>    | Superfund Amendments and Reauthorization Act  |
| <b>SDS</b>     | Safety Data Sheet   |
| <b>STEL</b>    | Short Term Exposure Limit   |
| <b>STOT RE</b> | Specific target organ toxicity - Repeated exposure  |
| <b>STOT SE</b> | Specific target organ toxicity - Single exposure  |
| <b>TDG</b>     | Transport of Dangerous Goods (Canada)   |
| <b>TSCA</b>    | Toxic Substances Control Act (United States)  |
| <b>TWA</b>     | Time-Weighted Average   |
| <b>UN</b>      | United Nations  |
| <b>VOC</b>     | Volatile organic compounds  |
| <b>vPvB</b>    | Very Persistent and Very Bioaccumulative  |
| <b>vPvM</b>    | Very Persistent and Very Mobile   |
| <b>Sk</b>      | Skin notation   |



**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety.  
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**Revision Note** Reviewed existing information and made minor updates.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**