

Material Safety Data Sheet

Printing date 10/28/2008

Reviewed on 08/21/2008

* 1 Identification of substance:

- **Product details:**
- **Trade name:** Dithiothreitol (DTT)
- **Catalog or product number:** 1610610, 1610611, 1610610EDU, 1610611EDU, 10005243, 10005526
- **Application of the substance / the preparation** Laboratory chemicals
- **Manufacturer/Supplier:**
Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547 (510)741-1000
- **Information department:** Technical services, customer support.
- **Emergency information:**
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.
510-741-1000

* 2 Composition/Information on components:

- **Chemical characterization:**
- **CAS No. Description:**
27565-41-9 (R*,R*)-(±)-1,4-dimercaptobutane-2,3-diol
- **Identification number(s):**
- **EINECS Number:** 248-531-9
- **Additional information:** For the wording of the listed risk phrases refer to section 16.

* 3 Hazards identification

- **Emergency overview:**
Irritant to skin.
Xn Harmful
- **Routes of exposure:**
Ingestion
Inhalation
Skin
- **Information pertaining to particular dangers for man and environment**
R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.
- **Classification system**
The classification was made according to OSHA 29CFR 1910.1200 and 1910.1030, and is expanded upon from company and/or literature information.
- **GHS label elements**
Exclamation mark **Warning**
3.1/4 - Harmful if swallowed.
3.1/4 - Harmful in contact with skin.
3.1/4 - Harmful if inhaled.
- **Prevention:**
Avoid breathing dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
- **Response:**
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Wash with plenty of soap and water.

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IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.

Specific measures (see label).

Rinse mouth.

Wash contaminated clothing before reuse.

• **Disposal:**

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

4 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. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

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

• **After skin contact** Generally the product does not irritate the skin.

• **After eye contact** Rinse opened eye for several minutes under running water.

• **After swallowing** Immediately call a doctor.

• **Information for doctor**

• **The following symptoms may occur:** Breathing difficulty

5 Fire fighting measures

• **Suitable extinguishing agents** Use fire fighting measures that suit the environment.

• **Protective equipment:** Mount respiratory protective device.

6 Accidental release measures

• **Person-related safety precautions:** Not required

• **Measures for environmental protection:** No special measures required.

• **Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

7 Handling and storage

• **Handling**

• **Information for safe handling:**

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

No special precautions are necessary if used correctly.

• **Information about protection against explosions and fires:** No special measures required.

• **Storage**

• **Requirements to be met by storerooms and receptacles:** According to product specification

• **Information about storage in one common storage facility:** Not required.

• **Further information about storage conditions:** Keep receptacle tightly sealed.

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* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **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.
- **Personal protective equipment**
- **General protective and hygienic measures**
Keep away from foodstuffs, beverages and feed.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
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.
- **Protection of hands:** Protective gloves.
- **Material of gloves:** Synthetic gloves
- **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 protection:** Safety glasses

* 9 Physical and chemical properties:

· General Information

Form:	Solid.
Color:	Whitish
Odor:	Sulphurous

· Change in condition

Melting point/Melting range: 42-44°C
Boiling point/Boiling range: undetermined

· **Flash point:** > 100°C

· **Flammability (solid, gaseous)** Product is not flammable.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Density:** Not determined

· Solubility in / Miscibility with

Water:	Fully miscible
Organic solvents:	0.0 %

· **Solids content:** 100.0 %

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Dangerous reactions** No dangerous reactions known

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· **Dangerous products of decomposition:** No dangerous decomposition products known

* 11 Toxicological information

- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritant effect.
- **Sensitization:** No sensitizing effects known.
- **Target organs:**
- Skin.
- Respiratory tract.

* 13 Disposal considerations

- **Product:**
- **Recommendation**
- Hand over to hazardous waste disposers.
- Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **UN "Model Regulation":** -

* 15 Regulations

- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

- **Section 313 (40CFR372.65):**

Substance is not listed.

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· **TSCA (Toxic Substances Control Act):**

Substance is listed.

· **Carcinogenicity categories**· **EPA (Environmental Protection Agency)**

Substance is not listed.

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

· **Markings according to EU guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials

· **Code letter and hazard designation of product:**

Xn Harmful

· **Risk phrases:**

20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

· **Safety phrases:**

60 This material and its container must be disposed of as hazardous waste.

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 MSDS:** Environmental Health and Safety.· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

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ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

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

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