

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 08/12/2014 Version: 1.0

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

1.1. Product identifier

Product form : Substance
 Trade name : 1,4-DITHIOTHREITOL (DTT)
 CAS No : 3483-12-3
 Product code : AB00490
 Formula : C4H10O2S2

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Laboratory use/Manufacturing component/Research

1.3. Details of the supplier of the safety data sheet

AmericanBio, Inc.
 15 Erie Dr.
 Natick, MA 01760 - USA
 T 800.443.0600 - F 508.655.2754
info@americanbio.com - www.americanbio.com

1.4. Emergency telephone number

Emergency number : 855.835.2572 (U.S.) :: 760.602.8703 (Outside U.S.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 4 (Oral) H302
 Skin Irrit. 2 H315
 STOT SE 3 H335

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) :

Warning

Hazard statements (GHS-US) :

H302 - Harmful if swallowed
 H315 - Causes skin irritation
 H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust
 P264 - Wash hands, forearms and face thoroughly after handling
 P270 - Do not eat, drink or smoke when using this product
 P271 - Use only outdoors or in a well-ventilated area
 P280 - Wear eye protection, protective clothing, protective gloves
 P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 P302+P352 - IF ON SKIN: Wash with plenty of soap and water
 P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 P312 - Call a POISON CENTER/doctor/physician if you feel unwell
 P321 - Specific treatment (see SECTION 4 on this label)
 P330 - If swallowed, rinse mouth
 P332+P313 - If skin irritation occurs: Get medical advice/attention
 P362 - Take off contaminated clothing and wash before reuse
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed
 P405 - Store locked up
 P501 - Dispose of contents/container to Collect all waste in suitable and labeled containers and dispose according to local legislation

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	Classification (GHS-US)
1,4-DITHIOTHREITOL (DTT) (Main constituent)	(CAS No) 3483-12-3	100	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 STOT SE 3, H335

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove the victim into fresh air. Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Wash immediately with lots of water (15 minutes)/shower. Remove clothing while washing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Consult a doctor/medical service. Get medical advice/attention. Specific treatment (see Consult a doctor/medical service on this label).
First-aid measures after eye contact	: Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents. Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm). Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: AFTER INHALATION OF DUST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Nausea. Vomiting. Central nervous system depression. Headache. Feeling of weakness. Respiratory difficulties. Blue/grey discolouration of the skin. Drunkenness. Disturbances of heart rate. Affection of the renal tissue. Disturbances of consciousness. May cause respiratory irritation.
Symptoms/injuries after skin contact	: Tingling/irritation of the skin. Causes skin irritation.
Symptoms/injuries after eye contact	: Irritation of the eye tissue.
Symptoms/injuries after ingestion	: Symptoms similar to those listed under inhalation. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

suitable extinguishing media	: Water spray. Alcohol-resistant foam. ABC powder. Carbon dioxide. Foam. Dry powder. Carbon dioxide. Water spray. Sand.
unsuitable extinguishing media	: Solid water jet ineffective as extinguishing medium. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Not easily combustible. In finely divided state: increased fire hazard. INDIRECT FIRE HAZARD. Heating increases the fire hazard. Reactions involving a fire hazard: see "Reactivity Hazard".
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1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

- Explosion hazard : DIRECT EXPLOSION HAZARD. Fine dust is explosive with air. INDIRECT EXPLOSION HAZARD. Dust cloud can be ignited by a spark.
- Reactivity : On heating: release of toxic/combustible gases/vapours (hydrogen sulphide). On heating/burning: release of toxic and corrosive gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Heat/fire exposure: gas-tight suit. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit. See "Material-Handling" to select protective clothing.
- Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes. Evacuate unnecessary personnel.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. Dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Powdered form: no compressed air for pumping over spills. On heating: dilute combustible/toxic gases/vapours.
- Methods for cleaning up : Prevent dust cloud formation. Scoop solid spill into closing containers. Powdered: do not use compressed air for pumping over spills. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Powdered form: no compressed air for pumping over. Avoid raising dust. Keep away from naked flames/heat. Finely divided: spark- and explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Avoid breathing dust. Use only outdoors or in a well-ventilated area.
- Hygiene measures : Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight. Keep container tightly closed.

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Incompatible products	: Strong bases. strong acids.
Incompatible materials	: Sources of ignition. Direct sunlight.
Storage temperature	: < 4 °C
Heat-ignition	: KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: oxidizing agents. reducing agents. (strong) bases.
Storage area	: Store in a cool area. Store in a dry area. Store in a dark area. Keep container in a well-ventilated place. Provide for a cooling system. May be stored under inert gas. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: hermetical. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: glass.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Materials for protective clothing	: GIVE GOOD RESISTANCE: rubber.
Hand protection	: Gloves. Wear protective gloves.
Eye protection	: Face shield. In case of dust production: protective goggles. Chemical goggles or safety glasses.
Skin and body protection	: Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing. Wear suitable protective clothing.
Respiratory protection	: Dust production: dust mask with filter type P2. Wear approved mask.
Other information	: When using, do not eat, drink or smoke.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid. Powder. Needles.
Molecular mass	: 154.25 g/mol
Color	: White.
Odor	: Unpleasant odour. Characteristic odour.
Odor threshold	: No data available
pH	: 5 (1 %)
pH solution	: 1 %
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: 40 °C
Freezing point	: No data available
Boiling point	: 125 °C (3 hPa)
Flash point	: > 110 °C
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: 5.3
Relative density	: 1
Solubility	: Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in ethylacetate. Water: 150 g/100ml
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Explosive properties : No data available
Oxidizing properties : No data available
Explosive limits : No data available

9.2. Other information

Other properties : Hygroscopic. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On heating: release of toxic/combustible gases/vapours (hydrogen sulphide). On heating/burning: release of toxic and corrosive gases/vapours (sulphur oxides, carbon monoxide - carbon dioxide).

10.2. Chemical stability

Unstable on exposure to moisture. Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

1,4-DITHIOTHREITOL (DTT) (f)3483-12-3

LD50 oral rat	400 mg/kg (Rat)
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Skin corrosion/irritation : Causes skin irritation.

pH: 5 (1 %)

Serious eye damage/irritation : Not classified

pH: 5 (1 %)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Nausea. Vomiting. Central nervous system depression. Headache. Feeling of weakness. Respiratory difficulties. Blue/grey discolouration of the skin. Drunkenness. Disturbances of heart rate. Affection of the renal tissue. Disturbances of consciousness. May cause respiratory irritation.

Symptoms/injuries after skin contact : Tingling/irritation of the skin. Causes skin irritation.

Symptoms/injuries after eye contact : Irritation of the eye tissue.

Symptoms/injuries after ingestion : Symptoms similar to those listed under inhalation. Swallowing a small quantity of this material will result in serious health hazard.

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Severe water pollutant (surface water). No data available on ecotoxicity.

12.2. Persistence and degradability

1,4-DITHIOTHREITOL (DTT) (3483-12-3)

Persistence and degradability	Biodegradability in water: no data available. Not established.
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12.3. Bioaccumulative potential

1,4-DITHIOTHREITOL (DTT) (3483-12-3)

Bioaccumulative potential	No bioaccumulation data available. Not established.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to Use appropriate containment to avoid environmental contamination.

Additional information : Hazardous waste according to Directive 2008/98/EC.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

No dangerous good in sense of transport regulations

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN N/A

Packing group (ADR) : N/A

Hazard identification number (Kemler No.) : N/A

Classification code (ADR) : N/A

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

1,4-DITHIOTHREITOL (DTT) (3483-12-3)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

1,4-DITHIOTHREITOL (DTT)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
Eye Irrit. 2 H319
STOT SE 3 H335
Skin Irrit. 2 H315

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Xn; R22
Xi; R36/37/38

Full text of R-phrases: see section 16

15.2.2. National regulations

No additional information available

15.3. US State regulations

No additional information available

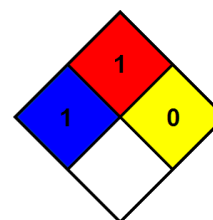
SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H302	Harmful if swallowed
H315	Causes skin irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard : 1 - Must be preheated before ignition can occur.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

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