



# Product Specifications

## DTT Dithiothreitol (Cleland's Reagent)

<u>Catalog #</u>	<u>Size</u>
IB21040	5gm
IB21045	25gm

### Physical Specifications

CAS#	3483-12-3
Formula Weight	154.25
Molecular Formula	$C_4H_{10}O_2S_2$
-SH content	Min. 99.4%
$A_{283}$ (0.02M, $H_2O$ )	Max. 0.05
-S-S-content	Max. 0.5%
Melting Point	$41 \pm 2^\circ C$
IR	Pass
Moisture	Max. 0.5%
Solubility (5%, water)	Clear and Colorless

### Recommended Use

DTT is used in enzyme preparations to prevent formation of disulfides from sulfhydryl groups, thereby stabilizing the enzyme.

### Storage

Store at  $-20^\circ C$ . Warm to room temperature before opening. Keep tightly sealed. A DTT solution should be stored in small aliquots at  $-20^\circ C$ . It is advisable that DTT solutions should be made fresh prior to each use.

**NOTE:** Do Not autoclave DTT or solutions containing DTT.

### Warning

Irritant. Causes irritation to eyes, skin, and mucous membranes. Avoid breathing dust. See Material Safety Data Sheet for additional information.



## IBI SCIENTIFIC

9861 Kapp Court ■ Peosta, IA 52068

**Tele:** (563) 690-0484 ■ 1-800-253-4942

**Fax:** (563) 690-0490 ■ **E-Mail:** [info@ibisci.com](mailto:info@ibisci.com)

**Web:** [www.ibisci.com](http://www.ibisci.com)

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Rev. 3

### 1. IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND THE COMPANY/UNDERTAKING

**Product Name:** DTT (DL-DITHIOTHREITOL)  
**Product Code:** IB21040 & IB21045  
**Recommend Use:** For further manufacturing use only  
Not for human or animal drug use  
**Synonyms:** 2,3-BUTANEDIOL, 1,4-DIMERCAPTO-, DL-THREO-\* 2,3-BUTANEDIOL, 1,4-DIMERCAPTO-, (R\*,r\*)- (-)-(9CI) \* CLELAND'S REAGENT \* DL-THREO-1,4-DIMERCAPTO-2,3-BUTANEDIOL \* (R\*,r\*)-(-)-1,4-DIMERCAPTO-2,4-BUTANEDIOL \* DITHIOTHREITOL \* DL-DITHIOTHREITOL \* DL-1,4-DITHIOTHREITOL \* RAC-DITHIOTHREITOL \*  
**Company:** IBI SCIENTIFIC  
9861 Kapp Court  
Peosta, IA 52068  
**Emergency Tele. Number:** 3E Company (Acct# 9027) 1-800-451-8346 / (001) 760-602-8703  
**Company Tele. Number:** 1-800-253-4942 / (001) 563-690-0484  
**E-Mail Address:** [info@ibisci.com](mailto:info@ibisci.com)

### 2. HAZARDOUS IDENTIFICATION

#### GHS – Classification

**Classification:** Skin Irritant 2 Eye Irritant 2 Acute Toxicity Oral 4

**Signal Word:** Warning



**Hazard Statements:** H302-Harmful if swallowed \* H315-Causes skin irritation \* H319-Causes serious eye irritation \* H335-May cause respiratory irritation

**Precautionary Statements:** P280-Wear protective gloves/protective clothing/eye protection/face protection \* 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 \* P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing \* P403 + P233-Store in a well ventilated place. Keep container tightly closed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<b>Chemical Name:</b>	DL-Dithiothreitol
<b>EC No.:</b>	EEC No. 248-531-9
<b>REACH Reg. No.:</b>	Not Available
<b>CAS No.:</b>	3483-12-3
<b>Weight %:</b>	95 – 100
<b>Classification:</b>	-

### 4. FIRST AID MEASURES

<b>Eye Contact:</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
<b>Skin Contact:</b>	Wash off immediately with soap and plenty of water, removing all contaminated clothes and shoes.
<b>Inhalation:</b>	Move to fresh air. If breathing is difficult, give oxygen.
<b>Ingestion:</b>	Clean mouth with water and afterwards drink plenty of water.
<b>Notes to Physician:</b>	Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

<b>Flammable Properties:</b>	Not flammable
<b>Flash Point:</b>	109°C / 228°F
<b>Suitable Extinguishing Media:</b>	Dry chemical, CO <sub>2</sub> , appropriate foam
<b>Hazardous Combustion Products:</b>	Carbon oxides, Sulfur oxides, Hydrogen sulfide gas
<b>Explosion Data</b>	
Sensitivity to Mechanical Impact:	Not sensitive
Sensitivity to Static Discharge:	Not sensitive
<b>Protective Equip. &amp; Precautions for Firefighters:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equiv.) and full protective gear.

### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Avoid contact with skin, eyes, and clothing. Use personal protective equipment. Ensure adequate ventilation.
<b>Methods for Containment:</b>	Prevent further leakage or spillage, if safe to do so.
<b>Methods for Cleaning Up:</b>	Avoid dust formation. Pick up and transfer to properly labeled containers. Ventilate area and wash spill site after material pickup is complete.

### 7. HANDLING AND STORAGE

<b>Handling:</b>	Handle in accordance with good industrial hygiene and safety practice. Hygroscopic.
<b>Storage:</b>	Keep container tightly closed in a dry, cool, and well-ventilated place. Hygroscopic.
<b>Incompatible Products:</b>	Bases, Oxidizing agents, Reducing agents, Alkali metals.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Chemical Name:</b>	DL-Dithiothreitol - #3483-12-3
ACGIH TLV:	-
OSHA PEL:	-
NIOSH IDLH:	-
<b>Engineering Measures:</b>	Showers, Eyewash Stations, Ventilation Systems

### **Personal Protective Equipment**

Eye/Face Protection:	Safety glasses with side shields. Avoid contact with eyes.
Skin & Body Protection:	Wear protective gloves/clothing.
Respiratory Protection:	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
<b>Hygiene Measures:</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	White powder
<b>Odor:</b>	Thiol odor, unpleasant characteristic, skunk-like
<b>Odor Threshold:</b>	No information available
<b>Decomposition Temp. °C:</b>	No information available
<b>Freezing Point:</b>	No information available
<b>Initial Boiling Point:</b>	No information available
<b>Physical State:</b>	Powder
<b>pH:</b>	4.3 (as 5% solution)
<b>Flash Point:</b>	228°F / 109°C
<b>Autoignition Temp. °C:</b>	No data available
<b>Boiling Point/Range:</b>	No data available
<b>Melting Point/Range:</b>	42 – 43°C
<b>Flammability Limits (Air):</b>	<u>Upper</u> -No data available * <u>Lower</u> -No data available
<b>Explosion Limits</b>	No information available
<b>Explosive Properties:</b>	No information available
<b>Oxidizing Properties:</b>	No information available
<b>Evaporation Rate:</b>	No information available
<b>MMHG @ 37.8°C:</b>	No data available
<b>Vapor Density:</b>	No data available
<b>Specific Gravity:</b>	1.0
<b>Solubility:</b>	Water soluble
<b>Partition Coefficient (n-octanol/water):</b>	No data available
<b>Viscosity:</b>	No information available

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under recommended storage conditions
<b>Incompatible Products:</b>	Bases, Oxidizing agents, Reducing agents, Alkali metals
<b>Conditions to Avoid:</b>	Protect from moisture
<b>Hazardous Decomposition Products:</b>	Carbon oxides, Sulfur oxides, Hydrogen sulfide gas
<b>Hazardous Polymerization:</b>	Hazardous polymerization does not occur.

## 11. TOXICOLOGICAL INFORMATION

### **Acute Toxicity**

Product Information:	Causes skin, eye, and respiratory tract irritation. Toxic by inhalation. Toxic by inhalation, in contact with skin and if swallowed.
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### **Chronic Toxicity**

Chronic Toxicity:	No known effect based on information supplied.
<b>Target Organ Effects:</b>	Central nervous system (CNS).

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:** The environmental impact of this product has not been fully investigated

## 13. DISPOSAL CONSIDERATIONS

**Water Disposal Method:** Dispose of material in accordance with all federal, state, and local regulations.

**Contaminated Packaging:** Dispose of in accordance with all federal, state, and local regulations.

## 14. TRANSPORT INFORMATION

### IATA

Not regulated

### US DOT

Not regulated

## 15. TOXICOLOGICAL INFORMATION

### REACH Title VII Restrictions

Chemical Name:	No information available
Dangerous Substances:	DL-Dithiothreitol - #3483-12-3
Organic Solvents:	Not applicable
Harmful Substances Whose Names are to be indicated on the Label:	Not applicable
Pollution Release and Transfer Registry (Class II):	Not applicable
Pollution Release and Transfer Registry (Class I):	Not applicable
Poison and Deleterious Substances Control Law:	Not applicable
ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying:	Not applicable
ISHA – Harmful Substances Requiring Permission:	Not applicable
Toxic Chemical Classification Listing (TCCL):	Not applicable
Toxic Release Inventory (TRI) – Group I:	Not applicable
Toxic Release Inventory (TRI) – Group II:	Not applicable

### International Inventories

TSCA:	Does not comply
EINECS/ELINCS:	Does not comply
ENCS:	Does not comply
IECSC:	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply

### U.S. Federal Regulations

#### **SARA 313**

Section 313 of Title III of the superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical/chemicals which are subject to the reporting requirements of the Act & Title 40 of the Code of Federal Regulations, part 372.

#### SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

#### **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).

#### **Clean Air Act**

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

**CERCLA**

**U.S. State Regulations**  
**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**International Regulations**  
**Mexico**

No information available

**Canada**

No information available

**WHMIS Hazard Class**  
D2B – Toxic materials



**16. OTHER INFORMATION**

<b>Issuing Date:</b>	10-Feb-1998
<b>Revision Date:</b>	09-Nov-2011
<b>Revision Note:</b>	Update to GHS Standard
<b>Recommended Restrictions:</b>	No information available
<b>Disclaimer:</b>	The information provided on this MSDS 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 guide for safe handling, use, processing, storage, transportation, disposal, and release; and is not to be considered as 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 material or in any process, unless specified in the test.

**End of MSDS**