

CHAITANYA CHS, 2<sup>nd</sup> FLOOR, OFFICE # 206, SIDDHARTH NAGAR, S.V.ROAD, GOREGAON (W), MUMBAI 400062, MH, INDIA.  
 CONTACT: +9122 28725393 /94/ 95 | EMAILID: CARE@SUVCHEM.COM

## MATERIAL SAFETY DATA SHEET (MSDS)

### DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)

#### 1. Identification of the substance/mixture and of the company/undertaking

##### 1.1. Product identifier

Trade name : DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)  
 Product code : D0089000001  
 Identification of the product : DITHIOTHREITOL (D.T.T.) 99%  
 Cas No:3483-12-3

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

Use : Industrial. For professional use only.

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

Company identification : SUVCHEM  
 Chaitanya Tower, 2nd Floor, Office # 206,  
 Siddharth Nagar, S.V. Road,  
 Goregaon (West), Mumbai - 400062,  
 Maharashtra, India.  
 Contact: +91 22 28725393 / 94 / 95  
 Email ID: info@suvchem.com/care@suvchem.com

##### 1.4. Emergency telephone number

Phone no. : + 91 22 28725393 / 94 / 95 (9:00am - 6:00 pm) [ Office hours ]

#### 2. Hazards identification -DSD

##### 2.1. Classification of the substance or mixture

##### Classification EC 67/548 or EC 1999/45

Classification : Xn; R22  
 Xi; R36/37/38

##### Hazard Class and Category Code(s), Regulation (EC) No 1272/2008 (CLP)

Health hazards : Specific Target Organ Toxicity - Single exposure - Respiratory tract irritation -  
 Category 3 - Warning (CLP : STOT SE 3) H335  
 Skin irritation - Category 2 - Warning (CLP : Skin Corr. 2) H315  
 Acute toxicity, Oral - Category 4 - Warning (CLP : Acute Tox. 4) H302  
 Eye irritation - Category 2A - Warning (CLP : Eye Irrit. 2) H319

##### 2.2. Label elements

##### Labelling EC 67/548 or EC 1999/45

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**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**2. Hazards identification -DSD (continued)**

Symbol(s)



Symbol(s)

: Xn : Harmful

R Phrase(s)

: R22 : Harmful if swallowed.

R36/37/38 : Irritating to eyes, respiratory system and skin.

S Phrase(s)

: S26 : In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36 : Wear suitable protective clothing.

**Labelling Regulation EC 1272/2008 (CLP)**

Hazard pictograms



Signal words

: Warning

Hazard statements

: H302 : Harmful if swallowed.

H319 : Causes serious eye irritation.

H315 : Causes skin irritation.

H335 : May cause respiratory irritation.

**Precautionary statements**
**• Prevention**

: P280: Wear protective gloves, protective clothing, eye protection, face protection.

P271: Use only outdoors or in a well-ventilated area.

P261: Avoid breathing dust, fume, gas, mist, vapours, spray.

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

**• Response**

: P302+P352: IF ON SKIN : Wash with plenty of soap and water.

P301+P312: IF SWALLOWED : Call a POISON CENTER or doctor if you feel unwell.

P332+P313: If skin irritation occurs : Get medical advice.

P305+P351+P338: IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340: IF INHALED : Remove to fresh air and keep at rest in a position comfortable for breathing.

P363: Wash contaminated clothing before reuse.

**• Storage**

: P403+P233: Store in well-ventilated place. Keep container tightly closed.

P405: Store locked up.

**• Disposal considerations**

: P501: Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

**2.3. Other hazards**

**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**2. Hazards identification -DSD (continued)**

**Other hazards** : The substance does not fulfil the criteria to be identified as PBT substance or vPvB substance according to Annex XIII of Regulation REACH.

**3. Composition/information on ingredients**

**Substance / Preparation** : DITHIOTHREITOL (D.T.T.) 99%  
Substance.

Contains no other components or impurities which will influence the classification of the product.

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

**Inhalation** : Call a POISON CENTER or doctor if you feel unwell. Remove to fresh air and keep at rest in a position comfortable for breathing.

**Skin contact** : Specific treatment (see on this label). Get medical advice. If skin irritation occurs : Wash with plenty of soap and water. Wash contaminated clothing before reuse.

**Eye contact** : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. If eye irritation persists : Get medical advice.

**Ingestion** : Obtain emergency medical attention. Do NOT induce vomiting. Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.

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

**Symptoms relating to use** : Swallowing a small quantity of this material will result in serious health hazard.  
Causes serious eye irritation.  
Causes skin irritation. May cause respiratory irritation.

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

**General information** : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**5. Fire-fighting measures**
**5.1. Extinguishing media**

**Suitable extinguishing media** : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

**Unsuitable extinguishing media** : Do not use a heavy water stream.

**Surrounding fires** : Use water spray or fog for cooling exposed containers.

**5.2. Special hazards arising from the substance or mixture**

**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**5. Fire-fighting measures (continued)**

**Hazardous combustion products** : Under fire conditions, hazardous fumes will be present.

**5.3. Advice for fire-fighters**

**Protection against fire** : Do not enter fire area without proper protective equipment, including respiratory protection.

**Special procedures** : Exercise caution when fighting any chemical fire. Avoid (reject) fire-fighting water to enter environment.

**6. Accidental release measures**
**6.1. Personal precautions, protective equipment and emergency procedures**

**For emergency responders** : Equip cleanup crew with proper protection. Ventilate area.

**For non-emergency personnel** : Evacuate unnecessary personnel.

**6.2. Environmental precautions**

**Environmental precautions** : Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

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

**Clean up methods** : On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

**6.4. Reference to other sections**

See section 8. Exposure controls/personal protection

**7. Handling and storage**
**7.1. Precautions for safe handling**

**Handling** : Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling.

**Technical protective measures** : Provide good ventilation in process area to prevent formation of vapour.

**Special precautions** : Avoid breathing dust, fume, gas, mist, vapours, spray.

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

**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**7. Handling and storage (continued)**

**Storage** : Keep only in the original container in a cool, well ventilated place. Keep container tightly closed.

**Storage - away from** : Strong bases. Strong acids. Sources of ignition. Direct sunlight.

**7.3. Specific end use(s)**

**Specific end use(s)** : None.

**8. Exposure controls/personal protection**
**8.1. Exposure controls**

**Personal protection** : Avoid all unnecessary exposure.

- **Respiratory protection** : Wear approved mask.
- **Hand protection** : Wear protective gloves.
- **Skin protection** : Wear suitable protective clothing.
- **Eye protection** : Chemical goggles or safety glasses.
- **Others** : When using, do not eat, drink or smoke.

**8.2. Control parameters**

**Occupational Exposure Limits** : No data available.

**9. Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**

**Physical state at 20 °C** : Solid.

**Colour** : White powder

**Odour** : Unpleasant Odor

**Odour threshold** : No data available.

**pH value** : Not applicable.

**Melting point [°C]** : 41 - 44 °C

**Decomposition point [°C]** : N/A

**Critical temperature [°C]** : N/A

**Auto-ignition temperature [°C]** : N/A

**Flammability (solid, gas)** : N/A

**Flash point [°C]** : 113 °C

**Boiling point [°C]** : 125 - 1300C

**Initial boiling point [°C]** : 1250C

**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**9. Physical and chemical properties (continued)**

Final boiling point [°C]	: 1300C
Evaporation rate	: N/A
Vapour pressure [20°C]	: N/A
Vapour pressure mm/Hg	: N/A
Vapour density	: 5,3
Density [g/cm3]	: 1
Relative density, gas (air=1)	: N/A
Relative density, liquid (water=1)	: N/A
Solubility in water [% weight]	: 15.4 g/l at 20 °C
Solubility in water	: N/A
Log Pow octanol / water at 20°C	: No data available.
Solubility	: 4 - 6 at 15,4 g/l at
Viscosity at 40°C [mm2/s]	: N/A

**9.2. Other information**

Explosive properties	: N/A
Explosion limits - upper [%]	: N/A
Explosion limits - lower [%]	: N/A
Oxidising properties	: No data available.

**10. Stability and reactivity**
**10.1. Reactivity**

Reactivity	: Not established.
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**10.2. Chemical stability**

Chemical stability	: Stable under recommended storage conditions.
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**10.3. Possibility of hazardous reactions**

Hazardous reactions	: Not established.
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**10.4. Conditions to avoid**

Conditions to avoid	: Direct sunlight. Extremely high or low temperatures.
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**10.5. Incompatible materials**

Materials to avoid	: Strong acids. Strong bases.
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**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**10. Stability and reactivity (continued)**
**10.6. Hazardous decomposition products**

Hazardous decomposition products : Fumes. Carbon monoxide. Carbon dioxide.

**11. Toxicological information**
**11.1. Information on toxicological effects**
**Acute toxicity**

- Inhalation : Based on available data, the classification criteria are not met.
- Dermal : Based on available data, the classification criteria are not met.
- Ingestion : Harmful if swallowed.

**Corrosion**

: Based on available data, the classification criteria are not met.

**Irritation**

 : Causes serious eye irritation.  
 Causes skin irritation.  
 May cause respiratory irritation.

**Sensitization**

: Based on available data, the classification criteria are not met.

**Mutagenicity**

: Based on available data, the classification criteria are not met.

**Carcinogenicity**

: Based on available data, the classification criteria are not met.

**Toxic for reproduction**

: Based on available data, the classification criteria are not met.

**STOT-single exposure**

: Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

: Based on available data, the classification criteria are not met.

**Aspiration hazard**

: Based on available data, the classification criteria are not met.

**12. Ecological information**
**12.1. Toxicity**

Toxicity information : Not established.

**12.2. Persistence - degradability**

Persistence - degradability : Biodegradable.

**12.3. Bioaccumulative potential**

Bioaccumulative potential : Not established.

**12.4. Mobility in soil**

Mobility in soil : Not established.

**MATERIAL SAFETY DATA SHEET (MSDS)**
**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**
**12. Ecological information (continued)**
**12.5. Results of PBT and vPvB assessment**

**Results of PBT and vPvB assessment** : The substance does not fulfil the criteria to be identified as PBT substance or vPvB substance according to Annex XIII of Regulation REACH.

**12.6. Other adverse effects**

**Environmental precautions** : Avoid release to the environment.

**13. Disposal considerations**
**13.1. Waste treatment methods**

**General** : Avoid release to the environment. Dispose in a safe manner in accordance with local/national regulations.  
 Dispose of this material and its container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

**14. Transport information**
**14.1. Land transport (ADR-RID)**

**General information** : Not regulated.

**14.2. Sea transport (IMDG) [English only]**

**General information** : Not regulated.

**14.3. Air transport (ICAO-IATA) [English only]**

**General information** : Not regulated.

**15. Regulatory information**
**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Safety, health and environmental regulations/legislation specific for the substance or mixture** : Ensure all national/local regulations are observed.

**REACH Restrictions - Annex XVII** : The components of this product are not subject to restrictions.

**REACH Authorisation - Annex XIV** : The components of this product are not subject to authorization.

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**DL-DITHIOTHREITOL (DL - DTT; CLELAND'S REAGENT) (FOR BIOCHEMISTRY)**

In accordance with REACH Regulation (CE) N° 1907/2006 and with CLP Regulation (CE) N° 1272/2008

**DISCLAIMER:**

- **SUVCHEM** Products are to be used as Lab Chemicals for R&D only. Not for drug, medicinal, household or other uses.
- **SUVCHEM** shall not be responsible for any damage resulting from handling or from contact with the above product.
- **SUVCHEM** provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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