

## SECTION 1: Product and Company Identification

### Identification of the substance or mixture

**Catalog #:** 10253, 10253-1, 10253-2  
**Product Name:** Dithiothreitol  
**CAS-No.:** 3483-12-3

### Company Identification

Cepham Life Sciences Inc.  
 11830 W Market Place, Suite K  
 Fulton, MD 20759  
 USA  
 Toll Free: 1-800-257-1565  
 Phone: 410-636-4954

**24-hour Emergency Response for Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Toll Free: 1-800-424-9300/ +1 703-527-3887 CCN 1010970**


For Research Use Only. Not for use in diagnostic procedures.

## SECTION 2: Hazards identification

### Classification of the substance or mixture

Acute toxicity, Oral (Category 4), H302  
 Skin irritation (Category 2), H315  
 Eye irritation (Category 2A), H319  
 For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS Label Elements, including Precautionary Statements

Pictogram	
Signal word	Warning
Hazard statement(s)	
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
Precautionary statement(s)	
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS – none

## SECTION 3: Composition / Information on Ingredients

### Substances

Synonyms: threo-1,4-Dimercapto-2,3-butanediol  
Cleland's reagent  
DTT

Formula: C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub>  
Molecular Weight: 154.25 g/mol  
CAS-No.: 3483-12-3

### Hazardous components

Component	Classification	Concentration
(R*,R*)-1,4-Dimercaptobutane-2,3-diol	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; H302, H315, H319	90-100%

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First Aid Measures

### Description of first aid measures

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available.

## SECTION 5: Firefighting Measures

### Extinguishing Media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Special hazards arising from the substance or mixture

Carbon oxides, nitrogen oxides (NO<sub>x</sub>), Sulphur oxides

#### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### Further information

No data available.

## SECTION 6: Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

#### Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

#### Reference to other sections

For disposal see section 13.

## SECTION 7: Handling & Storage

#### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

Keep in a dry place.

#### Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## SECTION 8: Exposure Controls / Personal Protection

#### Control parameters

##### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

#### Exposure controls

##### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

##### Personal Protective Equipment

###### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

###### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

###### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

###### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method:

###### EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

###### Body Protection

Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

###### Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**  
Do not let product enter drains.

## SECTION 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

a) Appearance	Form: powder Color: white
b) Odor	Unpleasant
c) Odor Threshold	No data available
d) pH	4.0 - 6 at 15.4 g/l at 25 °C (77 °F)
e) Melting point/freezing point	Melting point/range: 41 - 44 °C (106 - 111 °F) - lit.
f) Initial boiling point and boiling range	No data available
g) Flash point	113 °C (235 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	No data available
n) Water solubility	0.05 g/l - clear, soluble
o) Partition coefficient: n-octanol/water	log Pow: 0.05
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### Other safety information

No data available

## SECTION 10: Stability & Reactivity

### Reactivity

No data available

### Chemical stability

May decompose on exposure to moist air or water.  
Stable under recommended storage conditions.

### Possibility of hazardous reactions

No data available

### Conditions to avoid

No data available

### Incompatible materials

Bases, Oxidizing agents, Reducing agents, Alkali metals

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides  
Other decomposition products - No data available  
In the event of fire: see section 5

## SECTION 11: Toxicological Information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 400 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.  
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.  
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

No data available

**Additional Information**

RTECS: EK1610000

Nausea, Headache, Vomiting, Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

**SECTION 12: Ecological Information****Toxicity**

Toxicity to daphnia and other aquatic invertebrates

LC50 - Daphnia magna (Water flea) - 27 mg/l - 48 h

**Persistence and degradability**

No data available

**Mobility in soil**

No data available

**Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**Other adverse effects**

No data available

**SECTION 13: Disposal Considerations****Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product

## SECTION 14: Transport Information

### DOT (US)

UN number: 3335 Class: 9  
Proper shipping name: A Aviation regulated solid, n.o.s. ((R\*,R\*)-1,4-Dimercaptobutane-2,3-diol)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

### IMDG

Not dangerous goods

### IATA

UN number: 3335 Class: 9 Packing group: III  
Proper shipping name: Aviation regulated solid, n.o.s. ((R\*,R\*)-1,4-Dimercaptobutane-2,3-diol)

## SECTION 15: Regulatory Information

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

(R*,R*)-1,4-Dimercaptobutane-2,3-diol	CAS-No. 3483-12-3	Revision Date
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### New Jersey Right to Know Components

(R*,R*)-1,4-Dimercaptobutane-2,3-diol	CAS-No. 3483-12-3	Revision Date
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### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## SECTION 16: Other Information

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
Skin Irrit.	Skin irritation

### HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

### NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

### Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not represent any guarantee of the properties of the product. Cepham Life Sciences Incorporated and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.