

Order Number

Customer Number

1. Identification of the substance/preparation and of the company/undertaking

Product name : L-Thiocitrulline, Dihydrochloride **Catalog #** : 589411
Chemical formula : C₆H₁₃N₃O₂S · 2HCl **Supplier** : Manufactured by EMD Biosciences, Inc.
 10394 Pacific Center Court
 San Diego, CA 92121
 (858)450-5558/(800)854-3417
 FAX: (858)453-3552
Synonym : 2-Thioureido-L-norvaline

Emergency telephone number : Call Chemtrec®
 (800)424-9300 (within U.S.A.)
 (703)527-3887 (outside U.S.A.)

2. Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
2-Thioureido-L-norvaline	N/A	Not available.	-	-

3. Hazards identification

Physical/chemical hazards : Not applicable.

Human health hazards : No specific hazard.

4. First-aid measures

First-Aid measures

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin Contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Eye Contact : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Aggravating conditions : Repeated or prolonged exposure is not known to aggravate medical condition.

5. Fire-fighting measures

Flammability of the Product : May be combustible at high temperature.

Extinguishing Media

Suitable : SMALL FIRE: Use DRY chemical powder.
 LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Hazardous thermal (de)composition products : These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), sulfur oxides (SO₂, SO₃...), halogenated compounds, hydrogen chloride.

Special fire-fighting procedures : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters : Be sure to use an approved/certified respirator or equivalent.

6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Small Spill and Leak** : Use appropriate tools to put the spilled solid in a convenient waste disposal container.
- Large Spill and Leak** : Use a shovel to put the material into a convenient waste disposal container.

7. Handling and storage

- Handling** : Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 4°C (39.2°F).
- Packaging materials**
- Recommended use** : Use original container.

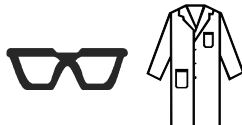
8. Exposure controls/personal protection

- Engineering measures** : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Hygiene measures** : Wash hands after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
L-Thiocitrulline, Dihydrochloride	Not available.

Personal protective equipment

- Skin and body** : Lab coat.
- Eyes** : Safety glasses.
- Protective Clothing (Pictograms)** :



9. Physical and chemical properties

- Physical state** : Solid.
- Color** : White.
- Molecular Weight** : 264.2 g/mole
- Solubility** : Easily soluble in cold water, methanol.
- Flash point** : Not available.
- Explosive properties** : Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

10. Stability and reactivity

- Stability** : The product is stable.
- Conditions to avoid** : Hygroscopic; keep container tightly closed.
- Hazardous Decomposition Products** : These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...), sulfur oxides (SO2, SO3...), halogenated compounds, hydrogen chloride.

11. Toxicological information

- RTECS #** : N/A
- Local effects**
- Skin irritation** : Not available.
- Acute toxicity** : LD50: Not available.
LC50: Not available.
- Chronic toxicity** : Repeated or prolonged exposure is not known to aggravate medical condition.
- Other Toxic Effects on Humans** : Not available.
No specific information is available in our database regarding the other toxic effects of this material for humans.
Not available.

- Carcinogenic effects** : Not available.
- Mutagenic effects** : Not available.
- Reproduction toxicity** : Not available.
- Teratogenic effects** : Not available.

12. Ecological information

- Ecotoxicity** : Not available.
- Toxicity of the Products of Biodegradation** : The products of degradation are more toxic than the product itself.

13. Disposal considerations

- Methods of disposal; Waste of residues; Contaminated packaging** : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport information

International transport regulations

Land - Road/Railway

- ADR/RID Class** : Not controlled under ADR (Europe).

Sea

- IMDG Class** : Not controlled under IMDG.

Air

- IATA-DGR Class** : Not controlled under IATA.

Special Provisions for Transport

Not applicable.

15. Regulatory information

EU Regulations

- Risk Phrases** : This product is not classified according to the EU regulations.

U.S. Federal Regulations

- TSCA**: No products were found.
- SARA 302/304/311/312 extremely hazardous substances**: No products were found.
- SARA 302/304 emergency planning and notification**: No products were found.
- SARA 302/304/311/312 hazardous chemicals**: No products were found.
- SARA 311/312 MSDS distribution - chemical inventory - hazard identification**: No products were found.
- SARA 313 toxic chemical notification and release reporting**: No products were found.
- Clean Water Act (CWA) 307**: No products were found.
- Clean Water Act (CWA) 311**: No products were found.
- Clean air act (CAA) 112 accidental release prevention**: No products were found.
- Clean air act (CAA) 112 regulated flammable substances**: No products were found.
- Clean air act (CAA) 112 regulated toxic substances**: No products were found.

- HCS Classification** : Not controlled under the HCS (United States).

State Regulations

:

WHMIS (Canada)

- Not controlled under WHMIS (Canada)**.
No products were found.

16. Other information

Hazardous Material Information System (U.S.A.)

Health	0
Fire Hazard	1
Reactivity	0
Personal Protection	A

National Fire Protection Association (U.S.A.)



Notice to Reader

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