

MATERIAL SAFETY DATA SHEET

Date Printed: 03/12/2008

Date Updated: 01/24/2006

Version 1.3

Section 1 - Product and Company Information

Product Name L-CYSTEINE, >=97%
Product Number W326305
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313 No
L-CYSTEINE	52-90-4	No

Formula C3H7NO2S
Synonyms L-Alanine, 3-mercapto- *
2-Amino-3-mercaptopropionic acid * Cystein *
Cysteine * L-Cysteine (9CI) * L-(+)-Cysteine *
Half-cysteine * beta-Mercaptoalanine * NSC-8746 *
Thioserine

RTECS Number: HA1600000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Harmful.
Harmful if swallowed.

HMIS RATING

HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0

NFPA RATING

HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed.
Store at 2-8°C

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Color: Colorless Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	121.16 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	220 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	Degree of Rotation: 50 g/l Solvent: 5 M HCl +9.8 - +7.6 (+/-0.5)	
Miscellaneous Data	N/A	
Solubility	Solvent: complete, colorless 1 M in HCl 1 M, 20°C	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide,
Nitrogen oxides, Sulfur oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral
Rat
1890 mg/kg
LD50
Remarks: Lungs, Thorax, or Respiration:Dyspnea.
Behavioral:Somnolence (general depressed activity). Kidney, Ureter, Bladder:Other changes in urine composition.

Intraperitoneal
Rat
1620 MG/KG
LD50
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory depression.

Subcutaneous
Rat
1550 MG/KG
LD50
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory depression.

Intravenous
Rat
1140 MG/KG
LD50

Oral
Mouse
660 mg/kg
LD50

Intraperitoneal
Mouse
1400 MG/KG
LD50
Remarks: Behavioral:Ataxia. Behavioral:Somnolence (general depressed activity). Lungs, Thorax, or Respiration:Respiratory depression.

Subcutaneous
Mouse
1360 MG/KG
LD50
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory

depression.

Intravenous
Mouse
1250 MG/KG
LD50

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 1 MMOL/L
Cell Type: fibroblast
Mutation test: Unscheduled DNA synthesis

Species: Human
Dose: 10 MG/L
Cell Type: lymphocyte
Mutation test: Sister chromatid exchange

Species: Rat
Dose: 1 MMOL/L
Cell Type: liver
Mutation test: DNA inhibition

Species: Hamster
Dose: 1 MMOL/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

Species: Hamster
Dose: 100 UMOL/L
Cell Type: ovary
Mutation test: Sister chromatid exchange

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 100 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (12D PREG)
Result: Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Species: Mouse
Dose: 3600 MG/KG
Route of Application: Oral
Exposure Time: (7-12D PREG)
Result: Effects on Newborn: Physical.

Species: Mouse
Dose: 27600 MG/KG
Route of Application: Oral
Exposure Time: (23D PRE)
Result: Maternal Effects: Menstrual cycle changes or disorders.

Species: Mouse
Dose: 6 GM/KG
Route of Application: Oral
Exposure Time: (30D MALE)
Result: Paternal Effects: Prostate, seminal vesicle, Cowper's gland, accessory glands.

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: None
Non-Hazardous for Transport: This substance is considered to be non-hazardous for transport.

IATA

Non-Hazardous for Air Transport: Non-hazardous for air transport.

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: Xn
Indication of Danger: Harmful.
R: 22
Risk Statements: Harmful if swallowed.

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Harmful.
Risk Statements: Harmful if swallowed.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.