

## MATERIAL SAFETY DATA SHEET

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Version 1.4

## Section 1 - Product and Company Information

Product Name CYSTAMINE DIHYDROCHLORIDE, 98%  
Product Number C121509  
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 |
|----------------------|---------|-------------|
| CYSTAMINE DICHLORIDE | 56-17-7 |             |

Formula C<sub>4</sub>H<sub>12</sub>N<sub>2</sub>S<sub>2</sub>.2Cl<sub>H</sub>

Synonyms AED \* 2-Aminoethyl disulfide dihydrochloride \*  
Cystamine dihydrochloride \*  
2,2'-Dithio-bis-(ethylamine) dihydrochloride \*  
Ethanamine, 2,2'-dithiobis-, dihydrochloride \*  
USAF CB-34

RTECS Number: KR7260000

## 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 breathing becomes difficult, call a physician.

#### 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.

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### Section 5 - Fire Fighting Measures

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#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### 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.

#### EXPOSURE HAZARD(S)

Material: Harmful solid.

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### Section 6 - Accidental Release Measures

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#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear protective equipment.

#### 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.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed. Store in a cool dry place.

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### Section 8 - Exposure Controls / PPE

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#### 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.

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### Section 9 - Physical/Chemical Properties

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|                       |   |                            |
|-----------------------|---|----------------------------|
| Appearance            | Color: Very faintly beige<br>Form: Powder |                            |
| Property              | Value                                     | At Temperature or Pressure |
| Molecular Weight      | 225.2 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      | N/A                                       |                            |
| Miscellaneous Data    | N/A                                       |                            |
| Solubility            | N/A                                       |                            |

N/A = not available

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### Section 10 - Stability and Reactivity

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#### STABILITY

Stable: Stable.

#### HAZARDOUS DECOMPOSITION PRODUCTS

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

#### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

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### Section 11 - Toxicological Information

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#### 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: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.  
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  
896 mg/kg  
LD50  
Remarks: Lungs, Thorax, or Respiration:Respiratory depression.  
Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Somnolence (general depressed activity).

Oral  
Mouse  
874 mg/kg  
LD50  
Remarks: Behavioral:Somnolence (general depressed activity).  
Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Respiratory depression.

Intraperitoneal  
Mouse  
405 MG/KG  
LD50

#### CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat  
Dose: 1250 MG/KG  
Route of Application: Oral  
Exposure Time: (13-17D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

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#### Section 12 - Ecological Information

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No data available.

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#### Section 13 - Disposal Considerations

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#### APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

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.

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#### Section 14 - Transport Information

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#### 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.

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## Section 15 - Regulatory Information

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### 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.  
Safety Statements: Wear suitable protective clothing.

### 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: No  
NDSL: Yes

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## Section 16 - Other Information

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### DISCLAIMER

For R&D use only. Not for drug, household or other uses.

### 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.