

## MATERIAL SAFETY DATA SHEET

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Version 1.8

## Section 1 - Product and Company Information

Product Name	HYDROXYLAMINE HYDROCHLORIDE, 99.9999%
Product Number	379921
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
HYDROXYLAMINE HYDROCHLORIDE	5470-11-1	No
Formula	H2NOH.HCl	
Synonyms	Hydroxylamine hydrochloride * Hydroxyammonium chloride * Hydroxylamine chloride * Hydroxylamine chloride (1:1) * Hydroxylammonium chloride * Oxammonium hydrochloride	
RTECS Number:	NC3675000	

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Toxic. Dangerous for the environment.

Toxic if swallowed. Causes burns. May cause sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Very toxic to aquatic organisms.

Target organ(s): Blood.

## HMIS RATING

HEALTH: 3\*

FLAMMABILITY: 0

REACTIVITY: 1

## NFPA RATING

HEALTH: 3

FLAMMABILITY: 0

REACTIVITY: 1

\*additional chronic hazards present.

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 immediately.

#### 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.

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### Section 5 - Fire Fighting Measures

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#### EXPLOSION HAZARDS

Container explosion may occur under fire conditions.

#### FLASH POINT

N/A

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: 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.

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### Section 6 - Accidental Release Measures

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#### 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.

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### Section 7 - Handling and Storage

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#### HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.

#### SPECIAL REQUIREMENTS

Air and moisture sensitive.

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## Section 8 - Exposure Controls / PPE

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### ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

### 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 full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

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## Section 9 - Physical/Chemical Properties

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Appearance	Physical State: Solid Color: White Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	69.49 AMU	
pH	2.5 - 3.5	20 °C Concentration: 50 g/l
BP/BP Range	N/A	
MP/MP Range	155.0 - 157.0 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.67 g/cm3	
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	Solubility in Water:Soluble.	

N/A = not available

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## Section 10 - Stability and Reactivity

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### STABILITY

Stable: Stable.

Conditions to Avoid: Air. Moisture.

Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nitrogen 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: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: Harmful if swallowed.

### SENSITIZATION

Skin: May cause allergic skin reaction.

### TARGET ORGAN(S) OR SYSTEM(S)

Blood.

### SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer. May cause convulsions.

### TOXICITY DATA

Oral

Rat

141 mg/kg

LD50

Remarks: Behavioral: Convulsions or effect on seizure threshold.

Oral

Mouse

408 mg/kg

LD50

Intraperitoneal

Mouse

10 MG/KG

LD50

Subcutaneous

Mouse

125 MG/KG

LD50

CHRONIC EXPOSURE - MUTAGEN

Species: Human  
Dose: 10 MG/L  
Cell Type: Other cell types  
Mutation test: Other mutation test systems

Species: Human  
Dose: 25 MG/L  
Cell Type: leukocyte  
Mutation test: Cytogenetic analysis

Species: Rat  
Dose: 19500 NG/PLATE  
Cell Type: Embryo  
Mutation test: Morphological transformation.

Species: Mouse  
Dose: 220 MG/L (+S9)  
Cell Type: lymphocyte  
Mutation test: Mutation in microorganisms

Species: Mouse  
Dose: 72 UMOL/L  
Cell Type: Embryo  
Mutation test: Cytogenetic analysis

Species: Mouse  
Dose: 31300 UG/L  
Cell Type: lymphocyte  
Mutation test: Mutation in mammalian somatic cells.

Species: Hamster  
Dose: 72 UMOL/L  
Cell Type: Other cell types  
Mutation test: Cytogenetic analysis

Species: Hamster  
Dose: 5 MMOL/L  
Cell Type: lung  
Mutation test: Sister chromatid exchange

Species: Monkey  
Dose: 50 MG/L  
Cell Type: kidney  
Mutation test: Micronucleus test

Species: Monkey  
Dose: 25 MG/L  
Cell Type: kidney  
Mutation test: Cytogenetic analysis

Species: Monkey  
Dose: 25 MG/L  
Cell Type: kidney  
Mutation test: Other mutation test systems

Species: Mammal  
Dose: 500 MG/L  
Cell Type: lymphocyte

Mutation test: Cytogenetic analysis

Species: Mammal

Dose: 25 MG/L

Cell Type: lymphocyte

Mutation test: Sister chromatid exchange

Mutation test: Histidine reversion (Ames)

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## Section 12 - Ecological Information

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### ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish

Species: Leuciscus idus

Time: 48 h

Value: 1.0 - 10.0 mg/l

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## Section 13 - Disposal Considerations

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### 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.

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## Section 14 - Transport Information

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### DOT

Proper Shipping Name: Corrosive solids, toxic, n.o.s.

UN#: 2923

Class: 8

Packing Group: Packing Group II

Hazard Label: Corrosive

Hazard Label: Toxic substances.

PIH: Not PIH

### IATA

Proper Shipping Name: Corrosive solid, toxic, n.o.s.

IATA UN Number: 2923

Hazard Class: 8

Packing Group: II

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## Section 15 - Regulatory Information

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### EU DIRECTIVES CLASSIFICATION

Symbol of Danger: Xn-N

Indication of Danger: Harmful. Dangerous for the environment.

R: 22-36/38-43-48/22-50

Risk Statements: Harmful if swallowed. Irritating to eyes and skin. May cause sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Very toxic to aquatic organisms.

S: 22-24-37-61

Safety Statements: Do not breathe dust. Avoid contact with skin. Wear suitable gloves. Avoid release to the environment. Refer to special instructions/safety data sheets.

### US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic. Dangerous for the environment.

Risk Statements: Toxic if swallowed. Causes burns. May cause

sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed. Very toxic to aquatic organisms.

Safety Statements: Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Target organ(s): Blood.

#### 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

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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 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.