

# HYDROXYLAMINE

HDA

## CAUTIONARY RESPONSE INFORMATION

Common Synonyms Oxammonium	Solid crystals  Sinks and mixes with water.	White colorless  Keep people away. Avoid contact with solid or liquid. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Call fire department. Notify local health and pollution control agencies. Protect water intakes.	Odorless
<b>Fire</b>	Combustible.  May explode if exposed to heat or open flame. POISONOUS GASES MAY BE PRODUCED WHEN HEATED. Wear goggles, self-contained breathing apparatus and rubber overclothing (including gloves). Combat fires from safe distance or protected location.		
<b>Exposure</b>	CALL FOR MEDICAL AID.  SOLID OR LIQUID Irritating to skin and eyes. If inhaled or swallowed may cause headache, dizziness, ringing in ears, labored breathing, nausea and vomiting. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting. If breathing has stopped, give artificial respiration.		
<b>Water Pollution</b>	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.  May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.		

## 1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse  
Stop discharge  
Do not burn

## 2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: NH<sub>2</sub>OH
- 2.3 IMO/UN Designation: Not listed
- 2.4 DOT ID No.: Not listed
- 2.5 CAS Registry No.: Currently not available
- 2.6 NAERG Guide No.: Not listed
- 2.7 Standard Industrial Trade Classification: 51451

## 3. HEALTH HAZARDS

- 3.1 Personal Protective Equipment: Wear protective clothing, cap, gloves, goggles - canister type mask recommended.
- 3.2 Symptoms Following Exposure: INHALATION: Moderately toxic by inhalation and oral routes with the following symptoms possible: headache, vertigo, tinnitus, dyspnea, nausea and vomiting, cyanosis, proteinuria and hematuria, jaundice, restlessness, and convulsion. Methemoglobinemia has been reported. EYES: Corrosive - highly irritating. SKIN: Irritating or corrosive to skin. INGESTION: Moderately toxic by inhalation and oral routes with the following symptoms possible; headache, vertigo, tinnitus, dyspnea, nausea and vomiting, cyanosis, proteinuria and hematuria, jaundice, restlessness, and convulsion. Methemoglobinemia has been reported.
- 3.3 Treatment of Exposure: Call a physician. EYES: Flush with water. SKIN: Wash with soap and water immediately. INGESTION: Remove by gastric lavage or emesis (vomiting) and catharsis.
- 3.4 TLV-TWA: Currently not available
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 Toxicity by Ingestion: Grade 3; LD<sub>50</sub> = 50 to 500 mg/kg.
- 3.8 Toxicity by Inhalation: Currently not available.
- 3.9 Chronic Toxicity: Potential mutagenic and teratogenic effects. Repeated exposure may enhance allergic reaction of the back of hands and forearms. Eczema following prolonged contact.
- 3.10 Vapor (Gas) Irritant Characteristics: Currently not available
- 3.11 Liquid or Solid Characteristics: Causes smarting of the skin and first-degree burns on short exposure; may cause second-degree burns on long exposure.
- 3.12 Odor Threshold: Odorless
- 3.13 IDLH Value: Not listed.
- 3.14 OSHA PEL-TWA: Not listed.
- 3.15 OSHA PEL-STEL: Not listed.
- 3.16 OSHA PEL-Ceiling: Not listed.
- 3.17 EPA AEGL: Not listed

## 4. FIRE HAZARDS

- 4.1 Flash Point: 265°F O.C. explodes
- 4.2 Flammability Limits in Air: Currently not available
- 4.3 Fire Extinguishing Agents: Use extreme caution - material may explode. Use remote extinguishing equipment or unmanned fixed turret and hose nozzles - evacuate area.

## 4.4 Fire Extinguishing Agents Not to Be Used:

- Currently not available

## 4.5 Special Hazards of Combustion

Products: Nitrogen oxides - toxic fumes - react with water or steam to produce heat and corrosive liquids - can react violently with reducing materials.

## 4.6 Behavior in Fire:

May explode when exposed to heat or flame. Exploses at 265°F.

## 4.7 Auto Ignition Temperature:

265°F

## 4.8 Electrical Hazards:

Currently not available

## 4.9 Burning Rate:

Currently not available

## 4.10 Adiabatic Flame Temperature:

Currently not available

## 4.11 Stoichiometric Air to Fuel Ratio:

5.9 (calc.)

## 4.12 Flame Temperature:

Currently not available

## 4.13 Combustion Molar Ratio (Reactant to Product):

2.5 (calc.)

## 4.14 Minimum Oxygen Concentration for Combustion (MOCC):

Not listed

## 7. SHIPPING INFORMATION

- 7.1 Grades of Purity: 100% pure
- 7.2 Storage Temperature: Cool - noncombustible building
- 7.3 Inert Atmosphere: Currently not available
- 7.4 Venting: Open occasionally to relieve decomposition products.
- 7.5 IMO Pollution Category: Currently not available
- 7.6 Ship Type: Currently not available
- 7.7 Barge Hull Type: Currently not available

## 8. HAZARD CLASSIFICATIONS

- 8.1 49 CFR Category: Not listed
- 8.2 49 CFR Class: Not pertinent
- 8.3 49 CFR Package Group: Not listed.
- 8.4 Marine Pollutant: No
- 8.5 NFPA Hazard Classification:
 

Category	Classification
Health Hazard (Blue)	1
Flammability (Red)	3
Instability (Yellow)	3
- 8.6 EPA Reportable Quantity: Not listed.
- 8.7 EPA Pollution Category: Not listed.
- 8.8 RCRA Waste Number: Not listed
- 8.9 EPA FWCPC List: Not listed

## 9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 Physical State at 15° C and 1 atm: Solid
- 9.2 Molecular Weight: 33.03
- 9.3 Boiling Point at 1 atm: 133.7°F = 56.5°C = 329.7°K 22 mm 158°F = 70°C = 343.2°K 60 mm
- 9.4 Freezing Point: 91.49°F = 33.05°C = 306.2°K
- 9.5 Critical Temperature: Currently not available
- 9.6 Critical Pressure: Currently not available
- 9.7 Specific Gravity: 1.227 at room temperature
- 9.8 Liquid Surface Tension: Currently not available
- 9.9 Liquid Water Interfacial Tension: Currently not available
- 9.10 Vapor (Gas) Specific Gravity: 1.14 (calculated)
- 9.11 Ratio of Specific Heats of Vapor (Gas): Currently not available
- 9.12 Latent Heat of Vaporization: 880 Btu/lb = 488.9 cal/g = 2.04 X 10<sup>3</sup> J/kg
- 9.13 Heat of Combustion: Not pertinent
- 9.14 Heat of Decomposition: Currently not available
- 9.15 Heat of Solution: 207 Btu/lb = 115 cal/g = 4.81 X 10<sup>3</sup> J/kg
- 9.16 Heat of Polymerization: Currently not available
- 9.17 Heat of Fusion: Currently not available
- 9.18 Limiting Value: Currently not available
- 9.19 Reid Vapor Pressure: Currently not available

## NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
64	82.436		C		C		C U R R E N T L Y
65	81.625		R		R		
66	80.853		R		R		
67	80.117		E		E		
68	79.417		T		T		
69	78.747		L		L		
70	78.108		Y		Y		
71	77.497		N		N		
72	76.912		O		O		
73	76.351		A		A		
74	75.813		V		V		
75	75.297		A		A		
76	74.801		V		V		
77	74.325		I		I		
			L		L		
			A		A		
			B		B		
			L		L		
			E		E		

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
S	120	0.215	120	0.00115			C U R R E N T L Y
O	125	0.280	125	0.00147			
L	130	0.360	130	0.00188			
U	135	0.459	135	0.00237			
B	140	0.580	140	0.00297			
L	145	0.727	145	0.00368			
E	150	0.904	150	0.00454			
	155	1.116	155	0.00555			
	160	1.369	160	0.00675			
	165	1.668	165	0.00816			
	170	2.021	170	0.00981			
	175	2.435	175	0.01173			
	180	2.919	180	0.01396			
	185	3.481	185	0.01652			
	190	4.132	190	0.01947			
	195	4.883	195	0.02285			
	200	5.747	200	0.02671			
	205	6.735	205	0.03110			
	210	7.864	210	0.03608			
	215	9.149	215	0.04172			
	220	10.606	220	0.04807			
	225	12.255	225	0.05521			
	230	14.115	230	0.06321			