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Oxford
Range of
Laboratory Chemicals

MATERIAL SAFETY DATA SHEET

HYDROXYLAMINE HYDROCHLORIDE 99% AR

(Hydroxyl Ammonium Chloride)

MSDS CAS: 5470-11-1

Section 1: Chemical Product and Company Identification

Section 1: Chemical Product

Product Name: HYDROXYLAMINE HYDROCHLORIDE AR

CAS#: 5470-11-1

Synonym: Hydroxyamine hydrochloride; Hydroxammonium chloride; Hydroxylamine chloride; Hydroxylammonium chloride; Oxammonium chloride

Chemical Name: Hydroxylamine Hydrochloride AR

Chemical Formula: $NH_2OH.HCl$

Brand: OXFORD

Details Of The Supplier Of The Safety Data Sheet:

Company identification:

OXFORD LAB FINE CHEM LLP
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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
HYDROXYLAMINE HYDROCHLORIDE AR	5470-11-1	100

Toxicological Data on Ingredients: **Hydroxylamine hydrochloride: ORAL (LD50): Acute: 408 mg/kg [Mouse]. 141 mg/kg [Rat].**

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive, sensitizer), of eye contact (corrosive). The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, cardiovascular system, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

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 immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

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

Section 4: First Aid Measures (Continued)

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: **Not available.**

Section 5: Fire and Explosion Data

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

Auto-Ignition Temperature: **Not available.**

Flash Points: **CLOSED CUP: 152°C (305.6°F).**

Flammable Limits: **Not available.**

Products of Combustion: **Not available.**

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of heat. Non-flammable in presence of open flames and sparks, of shocks.

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of open flames and sparks, of heat. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Decompostion may be initiated by action of localized heat. Nitrogen oxides, Hydrogen chloride, ammonia and/or derivatives are hazardous decomposition products. Decomposition starts at temperatures above 115 C. Decomposes violently or explosively when heated above 140 °C.

Section 5: Fire and Explosion Data (Continued)

Special Remarks on Explosion Hazards:
Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Decomposes violently or explosively when heated above 140 °C.

Section 6: Accidental Release Measures

Small Spill: **Use appropriate tools to put the spilled solid in a convenient waste disposal container.**

Large Spill:
Corrosive solid. Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:
Keep container dry. 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 ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, alkalis.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic Moisture sensitive.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
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.

Personal Protection:
Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Section 8: Exposure Controls/Personal Protection (Continued)

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: **Not available.**

Section 9: Physical and Chemical Properties

Physical state and appearance:	**Solid. (Crystalline solid.)**
Odor	**: Odorless.**
Taste	**: Not available.**
Molecular Weight	**: 69.49 g/mole**
Color	**: White to yellowish.**
pH (1% soln/water)	**: 3.2 [Acidic.]**
Boiling Point	**: Not available.**
Melting Point	**: Decomposition temperature: 151°C (303.8°F) -157 C**
Critical Temperature	**: Not available.**
Specific Gravity	**: Density: 1.67 (Water = 1)**
Vapor Pressure	**: Not applicable.**
Vapor Density	**: Not available.**
Volatility	**: Not available.**
Odor Threshold	**: Not available.**
Water/Oil Dist. Coeff.	**: Not available.**
Ionicity (in Water)	**: Not available.**
Dispersion Properties	**: See solubility in water.**
Solubility	**: Easily soluble in hot water. Soluble in cold water. Solubility in water: 560 g/l @ 20 deg. C; 83 g/100 mg @ 17 deg. C.**

Section 10: Stability and Reactivity Data

Stability: **The product is stable.**

Instability Temperature: **Not available.**

Section 10: Stability and Reactivity Data (continued)

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, combustible materials, organic materials, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Moisture sensitive Hygroscopic; keep container tightly closed. Also incompatible with heat + sodium acetate or ether, carbonyl compounds, copper sulfate, zinc and phosphorus chlorides, aldehydes, ketones, iron and its salts, heavy metals salts, combustible and flammable materials (e.g. alkyl resins, asphalt, gasoline, grease, methyl acetone, polystyrene, polyurethane). Hydroxylamine Hydrochloride reacts with alkalis to give free Hydroxylamine, which decomposes, especially in the presence of heavy metal ions and at elevated temperatures.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 141 mg/kg [Rat].

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive, sensitizer), of eye contact (corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Depending on the duration of skin contact, it may cause reddening, discomfort, severe irritation, and possible chemical burns. Chemical burns result in blistering of the skin and

Section 11: Toxicological Information (Continued)

Possible scarring. Skin contact may cause allergic sensitization and reaction in susceptible individuals. Eyes: Contact with eyes will cause severe irritation, pain, reddening, watering, and possibly burns, corneal damage and blindness. Inhalation: It may be destructive to the tissues of the mucous membranes and upper respiratory tract. Symtoms may include respiratory tract irritation or burning sensation/burns of the mucous membranes, breathing difficulty, coughing, wheezing, shortness of breath, dyspnea (labored breathing), nasal congestion, laryngitis, sore throat, headache, nausea, vomiting, and Methemoglobinemia (a condition that affects the ability of the blood to carry oxygen), and cyanosis (blue color of the skin due to lack of oxygen). Inhalation of low levels can cause allergic sensitization and reaction in susceptible individuals. Severe inhalation over-exposure can be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may be delayed. Ingestion: Harmful if swallowed. It can cause severe irritation and burns of the mouth, throat, esophagus, and other tissues of the digestive tract, nausea, vomiting, and diarrhea. Conversion of hemoglobin to methemoglobin may also occur Producing cyanosis (see acute inhalation). It may also cause a fall in blood pressure, ringing in the ears, shortness of breath, and affect behavior/central nervous system (headache, vertigo, convulsions). Ingestion of large volumes may cause coma and be fatal as a result of circulatory collapse. Chronic Potential Health Effects: Skin: Repeated or prolonged skin contact to low concentrations may cause dermatitis. Inhalation: Repeated or prolonged inhalation may cause allergic reaction in sensitized individuals. Inhalation/Ingestion: Prolonged or repeated exposure by inhalation or ingestion may affect metabolism (decreased appetite, weight loss), spleen, thyroid and blood/cause bone marrow damage (decreased leukocyte count, anemia). It may also Cause liver, kidney, and bone marrow damage. This substance is a blood toxin. Prolonged.

Section 12: Ecological Information

Ecotoxicity: **Not available.**

BOD5 and COD: **Not available.**

Products of Biodegradation: **Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.**

Toxicity of the Products of Biodegradation:
The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: **Not available.**

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

Land transport (ADR-RID)

Proper shipping name: CORROSIVE SOLID, TOXIC, N.O.S.
UN N°: 2923
H.I. nr: 86
ADR - Class: 8
Labelling - Transport: 8 : Corrosive substance. 6.1 : Toxic substances.
ADR - Group: II

Sea transport (IMDG) [English only]

Proper shipping name: CORROSIVE SOLID, TOXIC, N.O.S.
UN N°: 2923
IMO-IMDG - Class or division: 8 : Corrosive substance. (6.1 : Toxic substances.)
IMO-IMDG - Packing group: II

Air transport (ICAO-IATA) [English only]

Proper shipping name: CORROSIVE SOLID, TOXIC, N.O.S.
UN N°: 2923
IATA - Class or division: 8 : Corrosive substance. (6.1 : Toxic substances.)
IATA - Packing group: II

Section 15: Other Regulatory Information

Federal and State Regulations:
TSCA 8(b) inventory: Hydroxylamine hydrochloride TSCA 8(a) CAIR: Hydroxylamine hydrochloride

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:
WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). CLASS E: Corrosive solid.
DSCL (EEC): R22- Harmful if swallowed. Although the EU has classified it as R22, toxicity data shows that it should be classifed as R25 - Toxic if Swallowed. R36/38- Irritating to eyes and skin. R43- May cause sensitization by skin contact. R50- Very toxic to aquatic organisms. R48/22- Harmful: danger of serious S22-

Section 15: Other Regulatory Information (Continued)

Do not breathe dust. S24- Avoid contact with skin. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):
Health Hazard: 3
Fire Hazard: 1
Reactivity: 0
Personal Protection: j

National Fire Protection Association (U.S.A.):
Health: 3
Flammability: 1
Reactivity: 1
Specific hazard:

Protective Equipment:
Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

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