

MATERIAL SAFETY DATA SHEET

HYDROXYLAMINE HYDROCHLORIDE

PRODUCT CODE NUMBER(S): 4090-5, 4091-5

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Hydroxylamine hydrochloride; Hydroxylammonium chloride***Chemical Family:** *Hydroxylamine salt***Chemical Formula:** *NH₂OH.HCl***Product Use:** *Laboratory reagent***Manufacturer's Name and Address:***Caledon Laboratories Ltd.**40 Armstrong Avenue**Georgetown, Ontario L7G 4R9***Telephone No:** *(905) 877-0101***Fax No:** *(905) 877-6666***Emergency Telephone No:** *CANUTEC (613) 996-6666*

HAZARDOUS INGREDIENTS OF MATERIALS

<i>Ingredients</i>	<i>%</i>	<i>TLV Units</i>	<i>CAS No.</i>
<i>Hydroxylammonium chloride</i>	<i>99</i>	<i>Not established</i>	<i>5470-11-1</i>

PHYSICAL DATA

Physical State: *Solid***Odour and Appearance:** *White hygroscopic crystals, odourless***Odour Threshold (ppm):** *Not applicable***Vapour Pressure (mm Hg):** *Not available***Vapour Density (Air = 1):** *Not available***Evaporation Rate:** *Not applicable***Boiling Point (degrees C):** *Not available***Melting Point (degrees C):** *159°C (decomposes)***pH:** *3.2 (0.2 M, aqueous)***Specific Gravity:** *1.670***Coefficient of Water/Oil distribution:** *Not available*

SHIPPING DESCRIPTION

UN: *1759***T.D.G. Class:** *8***Pkg. Group:** *III*

REACTIVITY DATA

Chemical Stability: *Normally stable. Hygroscopic; decomposes on exposure to moist air, water or heat. May react violently with water, releasing toxic gases. May become self-reactive under conditions of shock, increased temperature or pressure.***Incompatibility with other substances:** *Extremely reactive with oxidizers. Incompatible with bases, copper, aluminum, iron, sodium acetate, ether, carbonyl compounds, copper sulphate, phosphorus chlorides.***Reactivity:** *Becomes unstable when exposed to moisture, heat, mechanical shock or friction, with violent decomposition. Avoid temperatures >120°, ignition sources, shock, friction, moisture, all incompatible materials, particularly oxidizers, generation of dust.***Hazardous Decomposition Products:** *Highly toxic fumes, NH₃, HCl, NO_x.*

FIRE AND EXPLOSION DATA

Flammability: *Combustible. Contact with oxidizing materials may cause very violent explosion. Contact with heat, shock or combustible material may cause fire or explosion. May explode when heated to 140°C. As with most organic compounds, fine dust dispersed in air in the presence of an ignition source is a potential dust explosion hazard.***Extinguishing Media:** *Use extinguisher appropriate to surrounding area. Use water as spray or fog to cool containers, disperse vapours, and flush material away from fire. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. Containers may explode in heat of fire; withdraw immediately in case of rising sound from vent or discoloration of container.***Flash Point (Method Used):** *Not available***Autoignition Temperature:** *Not available***Upper Flammable Limit (% by volume):** *Not available***Lower Flammable Limit (% by volume):** *Not available***Hazardous Combustion Products:** *Emits toxic fumes under fire conditions.***Sensitivity to Impact:** *May explode when shocked.***Sensitivity to Static discharge:** *May explode*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:**LD₅₀:** *(oral, rat) 141 mg/kg; (oral, mouse) 408 mg/kg***LC₅₀:** *Not available***Effects of Acute Exposure to Product:****Inhaled:** *Toxic; corrosive; can be fatal. Destructive to tissue of upper respiratory tract. Causes burning sensation in throat and chest, coughing, wheezing, shortness of breath, headache, nausea, vomiting. May cause spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, pulmonary edema and death; symptoms may be delayed for several hours.***In contact with skin:** *Corrosive to tissue, causing severe irritation, blistering, burns. Damage depends on concentration and duration of contact. May cause skin sensitization.***In contact with eyes:** *May cause severe irritation with corneal injury and result in permanent impairment of vision, even blindness. Degree of injury depends on concentration and duration of contact.*

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Ingested: Toxic; may be fatal. Symptoms are burns to mouth and throat, cyanosis (due to methemoglobin formation, may be delayed), fall in blood pressure, headache, vertigo, ringing in the ears, convulsions, paralysis. Ingestion can cause death from circulatory collapse.

Effects of Chronic Exposure to Product:

Risk of irreversible effects. Prolonged exposure can cause damage to liver, kidneys, spleen, heart, stomach, lungs. A blood toxin, causing conversion of hemoglobin to methemoglobin; symptoms are nausea and vomiting, blood and central nervous system effects, weakness, depression, headache, respiratory distress, cyanosis, irregular heart rate, eventual coma and death. Possible skin sensitizer. Persons with pre-existing skin disorders, or impaired liver, kidney, respiratory or blood systems may be more susceptible to the effects of this substance.

Carcinogenicity: Not listed as a carcinogen by NTP, IARC, OSHA.

Teratogenicity: No information available

Reproductive Effects: No information available

Mutagenicity: Insufficient information available

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Local exhaust ventilation required.

Respiratory Protection: Dust/mist mask. Up to 10x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH approved half-face dust/mist filter respirator. Up to 50x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH approved full face-piece dust/mist filter respirator. Higher or unknown concentrations, or for fire or spill conditions, self-contained breathing apparatus, or full face-piece, positive-pressure supplied-air respirator.

Eye Protection: Safety goggles and/or face shield.

Skin Protection: Rubber gloves. Other impervious protective clothing sufficient to prevent contact.

Other Personal Protective Equipment: Safety shower and eyebath in immediate work area.

Leak and Spill Procedure: Evacuate and ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the hazards of this material and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists, and contact with skin, eyes or clothing. Stop or reduce discharge if safe to do so. Do not touch spilled material. Mix with inert material and collect in a manner that does not raise dust. Keep material from entering sewers or waterways. After cleanup is complete, carefully flush the spill area with large amounts of water. Contaminated absorbent presents the same hazards as the product; treat with extreme caution.

Waste Disposal: Follow all federal, provincial and local regulations.

Handling Procedures and Equipment: TOXIC; CORROSIVE. Workers must be thoroughly trained in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Handle with extreme care. Do not shock. Keep work area free of extraneous materials. Do not generate dust. Prevent all eye and skin contact. Avoid inhalation of dust or mist. Avoid shock, sparks, flame, all sources of igni-

tion, temperatures >120°C. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements: Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Store away from incompatible materials. Keep away from all ignition sources. Keep containers tightly closed when not in use and when empty. Protect from damage and shock, and inspect frequently for signs of leaking.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY FLUSH EYES with gently running water for at least twenty (20) minutes holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact during first aid procedures. Get MEDICAL ATTENTION immediately. Flushing may be continued while casualty is transported to medical facility.

Skin: Remove contaminated clothing (including shoes, belts, watches and rings). Immediately flush the exposed area with large amounts of running water for at least fifteen (15) minutes or until no evidence of chemical remains. Wear protective gloves to avoid contact during first aid procedures. Obtain medical attention immediately. Decontaminate clothing before reuse, or discard.

Inhalation: IMMEDIATELY remove casualty from contaminated area to fresh air. (caution must be used by rescuers to avoid exposure to the contaminating fumes) Give oxygen for breathing difficulty. If breathing has stopped give artificial respiration. Get medical attention immediately. Stay with casualty until medical help arrives.

Ingestion: DO NOT INDUCE VOMITING. If casualty is alert and NOT convulsing, rinse mouth with water and give 2 cups of water or milk to drink to dilute material. IMMEDIATELY OBTAIN MEDICAL ATTENTION. If spontaneous vomiting occurs; have casualty lean forward with head down to avoid breathing in of vomitus. Rinse mouth and administer 2 cups of water or milk.

REFERENCES USED

CCINFO disc:

Budavari: The Merck Index, 12th ed., 1997

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed, 1987

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: June 7, 1991

Revision: December 2010

MSDS: 4090-5, 4091-5

Proposed WHMIS Designation: D2A; D1B; E

Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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