

**MATERIAL SAFETY DATA SHEET****HYDRIODIC ACID**

PRODUCT CODE NUMBER(S): 5926-2

**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:** *Hydriodic acid; Hydrogen iodide solution***Chemical Family:** *Mineral acid***Chemical Formula:** *HI***Product Use:** *Laboratory solvent and 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>Hydriodic acid</i>	<i>45-55</i>	<i>Not established</i>	<i>10034-85-2</i>
<i>Hypophosphorus acid</i>	<i>1.5</i>	<i>Not established</i>	<i>6303-21-5</i>

**PHYSICAL DATA****Physical State:** *Liquid***Odour and Appearance:** *Clear to yellow liquid; characteristic, pungent, sulphide-like odour***Odour Threshold (ppm):** *Not available***Vapour Pressure (mm Hg):** *Not available***Vapour Density (Air = 1):** *Not available***Evaporation Rate:** *Not available***Boiling Point (degrees C):** *127°C***Freezing Point (degrees C):** *Not available***pH:** *1.0 (0.1M)***Specific Gravity:** *1.7-1.95***Coefficient of Water/Oil distribution:** *Not available***SHIPPING DESCRIPTION****UN:** *1787***T.D.G. Class:** *8***Pkg. Group:** *II***REACTIVITY DATA****Chemical Stability:** *Normally stable (will darken when exposed to light or air).***Incompatibility with other substances:** *Incompatible with strong oxidizers, alkalies, fluorine, potassium, nitric acid, some metals, organic solvents, bases, amines. Attacks natural rubber. Corrodes steel.***Reactivity:** *Avoid exposure to heat, light, air, incompatible materials. Do not distill.***Hazardous Decomposition Products:** *Toxic vapours and compounds of iodine.***FIRE AND EXPLOSION DATA****Flammability:** *Not combustible. Releases highly flammable/explosive hydrogen on contact with most common metals.***Extinguishing Media:** *Use an extinguisher appropriate to the surrounding material that is burning. Water spray may be used to extinguish fires, cool containers and disperse vapours. Fight fire from upwind, from a safe distance.***Firefighters must wear protective equipment (full face-piece, positive-pressure self-contained breathing apparatus) and clothing (encapsulating chemical splash suit) sufficient to prevent inhalation of fumes or vapours and contact with skin and eyes.****Flash Point (Method Used):** *Not applicable***Autoignition Temperature:** *Not applicable***Upper Flammable Limit (% by volume):** *Not applicable***Lower Flammable Limit (% by volume):** *Not applicable***Hazardous Combustion Products:** *Emits toxic/hazardous gases of iodine under fire conditions.***Sensitivity to Impact:** *None identified***Sensitivity to Static discharge:** *None identified***TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD<sub>50</sub>:** *(oral, rat) >90 mL/kg***LC<sub>50</sub>:** *Not available***Effects of Acute Exposure to Product:****Inhaled:** *Toxic, corrosive. Extremely destructive to tissue of upper respiratory tract. Inhalation of vapours causes severe irritation of eyes, nose and throat, coughing, choking and difficulty breathing. Overexposure can cause severe damage to lungs, pulmonary edema, respiratory collapse, and death. Symptoms may be delayed until hours or days after exposure. Even short term exposure, if severe, can result in permanent lung damage.***In contact with skin:** *Corrosive. Severity of injury depends on the concentration and duration of exposure. Can cause severe irritation, pain, burns and permanent scarring. Repeated exposure to dilute solutions may cause irritation, redness, pain, drying and cracking of the skin.***In contact with eyes:** *Corrosive. Severity of injury depends on the concentration and duration of exposure. Can cause severe irritation, swelling, pain, burns and permanent corneal damage, including blindness.***Ingested:** *Highly toxic. May be fatal if swallowed. Causes severe burning and pain in the mouth, throat and abdomen, vomiting, diarrhea. May cause perforation of stomach, with severe abdominal pain, and bloody vomitus. Aspiration may occur during ingestion or vomiting, and can cause serious lung damage, pulmonary edema, and death.***Effects of Chronic Exposure to Product:***Prolonged or repeated inhalation may cause bronchitis. Persons with pre-existing skin disorders, eye problems or impaired respiratory function may be more susceptible to the effects of this chemical. Prolonged or repeated exposure to*

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dilute solutions may cause irritation and dermatitis. Prolonged exposure to iodides can cause iodism in sensitive individuals, with rash, runny nose, headache.

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

**Teratogenicity:** Chronic ingestion of iodides during pregnancy can cause fetal death, severe goiter, cretinoid appearance of the newborn.

**Reproductive Effects:** No information available

**Mutagenicity:** No information available

**Synergistic Products:** None known

## PREVENTIVE MEASURES

**Engineering Controls:** Local, corrosion-proof, exhaust ventilation required.

**Respiratory Protection:** Use only in a chemical fumehood. NIOSH/OSHA approved cartridge respirator with organic vapour cartridges. For higher or unknown concentrations, as in fire or spill conditions, full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus or full face-piece, positive-pressure self-contained breathing apparatus.

**Eye Protection:** Chemical goggles, face shield

**Skin Protection:** Barricade™, Chemrel™, neoprene, nitrile, high grade PVC or butyl rubber gloves. Other impervious clothing, apron, sleeves, coverall, boots sufficient to prevent contact.

**Other Personal Protective Equipment:** Safety showers and eye wash fountains in storage and handling area.

**Leak and Spill Procedure:** Evacuate area. Eliminate all sources of ignition. Cleanup crew must be thoroughly trained in the hazards of this product and its safe use, and must wear respiratory equipment and impervious protective clothing sufficient to prevent inhalation of mists, fumes or vapours, and contact. Do not work alone with this product. Stop the discharge if possible and contain by constructing barriers. Spread soda ash liberally over the spillage. Keep away from metals. Keep from entering sewers or waterways. Absorb with inert material (vermiculite, sand, earth; do not use combustible material, eg. sawdust). Collect and store in labelled, closed containers for disposal, reclamation or neutralization. Contaminated absorbent may pose the same hazards as the product, treat with extreme caution. Ventilate area and flush site with plenty of water.

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

**Handling Procedures and Equipment:** CORROSIVE. Persons working with this product must be thoroughly trained in its hazards and its safe use, and must wear appropriate respiratory equipment and impervious protective clothing. When diluting, always add acid to water, not water to acid. Heat is generated by dilution. Avoid inhalation of mists or vapours. Avoid all skin contact with liquid or vapours. Use the smallest possible amount for the purpose, in designated areas with adequate ventilation. Keep work area free of incompatible materials. Work areas and equipment should not be made of metal. Caution: empty containers may contain hazardous residues, treat with caution.

**Storage Requirements:** Store below 30°C in suitable, labelled containers (do not use metal), in a dry, well-ventilated area, out of direct sunlight and away from heat, and all incompatible materials. Keep tightly closed. Protect from damage, and inspect frequently for signs of damage, corrosion, or leaks. Storage area should have raised sills with trenching to a safe area. Storage shelves should not be made of metal.

## FIRST AID MEASURES

**SPEED IN REMOVING ACID FROM CONTACT WITH TISSUE IS OF PRIMARY IMPORTANCE. DELAY CAN RESULT IN SERIOUS INJURIES.**

### Specific Measures:

**Eyes:** IMMEDIATELY FLUSH EYES with gently running water for thirty to sixty (30-60) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Wear gloves to prevent contact. Get medical attention immediately.

**Skin:** IMMEDIATELY remove contaminated clothing (including shoes, watches, belts, and rings) and flush the exposed area with running water for at least twenty to thirty (20-30) minutes. Place victim under a deluge shower if the exposure was extensive. Wear protective gloves to avoid contact. Completely clean folds, creases, groin, under fingernails. Get medical attention IMMEDIATELY. Discard contaminated clothing, shoes, leather goods.

**Inhalation:** IMMEDIATELY remove 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 and get medical attention immediately. Avoid contact by using mouth guards or shields. Stay with casualty until medical help arrives. Second rescuer should obtain oxygen equipment and ambulance. If severe exposure is suspected, hospitalization and observation for 72 hours for delayed onset of pulmonary edema is advised.

**Ingestion:** DO NOT INDUCE VOMITING. If casualty is alert and not convulsing, rinse mouth with water and give 1 to 2 glasses of water or milk 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 thoroughly and give more water or milk to drink.

## REFERENCES USED

CCINFO disc

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

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

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

Suppliers' Material Safety Data Sheets

## ADDITIONAL INFORMATION

**Date Issued:** July 22, 1991

**Revision:** December 2009

**MSDS:** 5926-2

**Proposed WHMIS Designation:** E

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