

MATERIAL SAFETY DATA SHEET**BERYLLIUM REFERENCE STANDARD**

PRODUCT CODE NUMBER(S): 2181-6

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** *Beryllium reference standard, 1000 ppm, for atomic absorption***Chemical Family:** *Metal in solution***Chemical Formula:** *Be, HCl in H₂O***Product Use:** *For atomic absorption spectroscopy***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>Beryllium</i>	<i><1</i>	<i>2 mg.m³</i>	<i>7440-41-7</i>
<i>Hydrochloric acid</i>	<i>2</i>	<i>1 mg/m³</i>	<i>7647-01-0</i>

PHYSICAL DATA**Physical State:** *Liquid***Odour and Appearance:** *Clear faint yellow solution, slight hydrochloric acid odour***Odour Threshold (ppm):** *Not available***Vapour Pressure (mm Hg):** *Similar to water***Vapour Density (Air = 1):** *Similar to water***Evaporation Rate:** *Similar to water***Boiling Point (degrees C):** *~100°C***Freezing Point (degrees C):** *~0°C***pH:** *Slightly acidic***Specific Gravity:** *~1.0***Coefficient of Water/Oil distribution:** *Not available***SHIPPING DESCRIPTION****UN:** *Not regulated***T.D.G. Class:** *Not regulated***Pkg. Group:** *Not regulated***REACTIVITY DATA****Chemical Stability:** *Stable***Incompatibility with other substances:** *Hydrochloric acid is incompatible with alkalis, metals, acetic anhydride, ethylene diamine. Contact with active metals may generate enough heat to ignite adjacent combustible material.***Reactivity:** *Avoid elevated temperatures, incompatible materials, generation of mist.***Hazardous Decomposition Products:** *Toxic and corrosive hydrogen chloride gas and vapour, flammable hydrogen gas, beryllium oxides.***FIRE AND EXPLOSION DATA****Flammability:** *Non flammable, but can release flammable hydrogen gas in contact with active metals. See "Reactivity Data".***Extinguishing Media:** *Use an extinguisher appropriate to the surrounding material that is burning. Use water as spray or fog to absorb heat, cool containers, and disperse vapours. 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.***Flash Point (Method Used):** *None***Autoignition Temperature:** *Not applicable***Upper Flammable Limit (% by volume):** *Not applicable***Lower Flammable Limit (% by volume):** *Not applicable***Hazardous Combustion Products:** *Toxic fumes of hydrogen chloride, hydrogen gas, beryllium oxides.***Sensitivity to Impact:** *None***Sensitivity to Static discharge:** *None***TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** *(oral, rabbit) 900 mg/kg (conc. HCl)***LC₅₀:** *(inh, rat) 3,124 ppm/1h (conc. HCl)***Effects of Acute Exposure to Product:****Inhaled:** *Irritates. May be harmful. Severity of effects depends on the concentration of the solution and the duration of exposure. Solutions or mist with a pH of 3 or less are a significant health concern.***In contact with skin:** *May irritate. Beryllium penetrating cuts and abrasions may cause local damage which heals with difficulty.***In contact with eyes:** *Irritating; may cause burns, watering, conjunctivitis.***Ingested:** *May irritate, causing gastrointestinal pain, nausea, vomiting, diarrhea. Ingestion of large amounts may be harmful.***Effects of Chronic Exposure to Product:***Prolonged or repeated exposure to low concentrations of mist can cause brown staining of tooth enamel and dental erosion, dermatitis, bronchitis, gastritis.***Carcinogenicity:** *Beryllium is a confirmed human carcinogen Designation A1 (ACGIH); possible human carcinogen, 2B (IARC); reasonably anticipated to be carcinogen (NTP).***Teratogenicity:** *HCl may cause teratogenic effects (RTECS No. MW 4025000)***Reproductive Effects:** *Effects cited for concentrated hydrochloric acid.***Mutagenicity:** *Effects cited for concentrated hydrochloric acid.*

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Synergistic Products: None found**PREVENTIVE MEASURES****Engineering Controls:** Local exhaust ventilation required.**Respiratory Protection:** Fumehood or cubicle. Dust/mist mask. Up to 50 ppm hydrochloric acid: chemical cartridge respirator with cartridges to protect against hydrogen chloride, or gas mask with canister to protect against hydrogen chloride. For higher or unknown concentrations, or for fire or spill conditions, positive pressure, full facepiece self contained breathing apparatus.**Eye Protection:** Chemical safety goggles**Skin Protection:** Rubber or neoprene gloves. Other protective clothing, apron, sleeves sufficient to prevent contact with skin and eyes and inhalation of vapours.**Other Personal Protective Equipment:** Safety shower and eye-wash fountain in work area.**Leak and Spill Procedure:** If spill is large and fumes may be present, cleanup personnel should be trained in the handling of hazardous substances and should wear protective equipment and clothing sufficient to prevent inhalation of mist or fumes, and contact with skin and eyes. Absorb on inert absorbent. Transfer carefully into container and arrange removal by disposal company. Wash site of spillage thoroughly with water and detergent.**Waste Disposal:** Follow all federal, provincial and local regulations for disposal.**Handling Procedures and Equipment:** IRRITANT.

Workers using this chemical should be thoroughly trained in its hazards and its safe use, and should wear appropriate protective equipment and clothing. Use routine safe handling procedures. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Keep work area free from extraneous materials. Do not get in eyes, on skin, or on clothing. Avoid breathing mist. Wash thoroughly after handling.

Storage Requirements: Store in cool, dry, well-ventilated area, out of direct sunlight, and away from heat or ignition sources and incompatible materials. Keep containers tightly closed. Protect from damage and freezing.**FIRST AID MEASURES****Specific Measures:****Eyes:** Flush eyes thoroughly with gently running water for ten to fifteen (10-15) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Get medical attention.**Skin:** Remove contaminated clothing, including watches, rings, belts, and shoes. Wash skin with plenty of running water for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation develops get medical attention.**Inhalation:** Remove to fresh air. Give oxygen or get medical attention for any breathing difficulty.**Ingestion:** If the victim is alert and not convulsing, rinse mouth thoroughly with water and give 2 to 4 glasses of water to drink to dilute. If victim feels unwell, or if a large amount has been ingested, get medical attention.**REFERENCES USED***Budavari: The Merck Index, 12th ed., 1997**Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 19879**Suppliers' Material Safety Data Sheets***ADDITIONAL INFORMATION****Date Issued:** May 20, 1991**Revision:** October 2010**MSDS:** 2181-6**Proposed WHMIS Designation:** D1A; E (conc. HCl)

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