

MATERIAL SAFETY DATA SHEET**MERCAPTOACETIC ACID**

PRODUCT CODE NUMBER(S): 4980-5

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** *Mercaptoacetic acid; Thioglycolic acid; Ethanethioic acid***Chemical Family:** *Mercaptocarboxylic acid***Chemical Formula:** $\text{CH}_2(\text{SH}).\text{COOH}$ **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>Mercaptoacetic acid</i>	<i>98</i>	<i>1 ppm</i> <i>(includes skin ex-posure)</i>	<i>68-11-1</i>

PHYSICAL DATA**Physical State:** *Liquid***Odour and Appearance:** *Colourless liquid with a strong, unpleasant, skunky odour***Odour Threshold (ppm):** *Not available. Odour not a reliable indicator, olfactory fatigue may occur.***Vapour Pressure (mm Hg):** *0.075 mm Hg @ 20°C***Vapour Density (Air = 1):** *3.18***Evaporation Rate:** *Not available***Boiling Point (degrees C):** *123°C @ 29 mm Hg; probably decomposes at normal pressure***Freezing Point (degrees C):** *-16.5°C***pH:** *1.6 (10%, aqueous)***Specific Gravity:** *1.325 @ 20°C***Coefficient of Water/Oil distribution:** *Log P(oct) = 0.09***SHIPPING DESCRIPTION****UN:** *1940***T.D.G. Class:** *8***Pkg. Group:** *II***REACTIVITY DATA****Chemical Stability:** *Readily oxidized by air, forming dithiodiglycolic acid. Depending on concentration of the solution, temperature and length of storage, water solutions can form dithiodiglycolic acid and thioglycolides on exposure to air.***Incompatibility with other substances:** *Can react violently with strong oxidizing agents, bases, acids. Reacts with active metals to release flammable/explosive hydrogen gas. Concentrated mercaptoacetic acid is not corrosive to steel, 316 stainless steel, nickel-chromium-iron-molybdenum alloy at 25-38°C. Dilute solutions (10-20%) are not corrosive to 316 stainless steel, nickel-chromium-iron-molybdenum and nickel-chromium-molybdenum C-276 alloys, or aluminum at 25°C.***Reactivity:** *Avoid heat, sparks, flame, hot surfaces, all incompatible materials, exposure to air, generation of mist or vapour.***Hazardous Decomposition Products:** *Dithiodiglycolic acid, hydrogen sulphide, sulphur compounds.***FIRE AND EXPLOSION DATA****Flammability:** *Combustible liquid; can burn if strongly heated. Can decompose at high temperatures forming very toxic/flammable hydrogen sulphide, irritating/toxic sulphur oxide gases. Reaction with metals, such as sodium, potassium, magnesium or calcium, produces highly flammable/explosive hydrogen gas. Vapors are heavier than air, and may spread along the ground and collect in low or confined areas, creating a fire or toxicity hazard.***Extinguishing Media:** *CO₂, dry chemical powder, appropriate foam. Use water as spray or fog to cool containers and disperse vapours. Do not spray water directly on fire involving mercaptoacetic acid - may react violently. However, water, applied carefully, as a spray or fog, will cause frothing that will help to blanket and extinguish the fire. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (positive-pressure, full face-piece self-contained breathing apparatus) and clothing (full Bunker Gear) sufficient to prevent inhalation of dust or fumes, and contact with skin, eyes, and clothing. Closed containers may explode in heat of fire; withdraw immediately in case of rising sound from vent or discoloration of tank.***Flash Point (Method Used):** *126°C (CC)***Autoignition Temperature:** *350°C***Upper Flammable Limit (% by volume):** *Not available***Lower Flammable Limit (% by volume):** *5.9***Hazardous Combustion Products:** *CO_x, SO_x, H₂S***Sensitivity to Impact:** *None identified***Sensitivity to Static discharge:** *Will not accumulate static charge; high electrical conductivity. Will not be ignited by a static discharge; high flash point.***TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** *(oral, rat) 114 mg/kg; (dermal, female mouse) 47 mg/kg***LC₅₀:** *E***Effects of Acute Exposure to Product:****VERY TOXIC.** *May be fatal if absorbed through the skin or swallowed. CORROSIVE to the eyes and skin. May cause permanent eye injury.***Inhaled:** *Both mist and vapours are irritating and very toxic. No human and limited animal information available. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Severe overexposure may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.***In contact with skin:** *Corrosive. Causes burns and blisters on contact. Solutions as dilute as 3% are irritating. Readily absorbed through skin in quantities sufficient to cause death. Has caused fatalities in animal testing, with*

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weakness, breathing difficulty and convulsions (AGCIH, 1986)

In contact with eyes: Corrosive. Lachrymator; vapour irritates and causes tearing. Liquid can cause severe burns which heal very slowly. May cause severe, permanent corneal damage and blindness.

Ingested: Can cause severe burns to mouth and gastrointestinal tract with risk of perforation. May be fatal. Highly toxic, causing liver damage. Not a typical route of industrial exposure.

Effects of Chronic Exposure to Product:

No reports of chronic exposure available.

Carcinogenicity: Not evaluated as a carcinogen

Teratogenicity: No human or animal information available.

Reproductive Effects: No human or animal information available.

Mutagenicity: Insufficient information available.

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded, corrosion-resistant ventilation system, separate from other ventilation systems, and electrical equipment that does not provide a source of ignition.

Respiratory Protection: Dust mask. Use only in a chemical fumehood. Up to 10x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH approved half-face high-efficiency 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 high-efficiency 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: Chemical safety goggles and/or face shield. Do not wear contact lenses when working with chemicals

Skin Protection: Butyl rubber, neoprene, Viton, Tychem BR/LV, Tychem TK gloves and apron. Impervious sleeves, coveralls, and boots as required to prevent all contact.

Other Personal Protective Equipment: Safety shower and eye-wash fountain in work area.

Leak and Spill Procedure: Evacuate area and ventilate. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the handling of hazardous materials, and must wear protective equipment and clothing sufficient to prevent all contact and inhalation of fumes. Contain spill and soak up with non-combustible, non-reactive absorbent. Prevent from entering sewers and waterways. Transfer carefully into container and arrange removal by disposal company. Contaminated absorbent may pose the same hazards as the material; treat with caution. Wash site of spillage thoroughly with strong soap solution to which has been added 10% calcium or sodium hypochlorite.

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

Handling Procedures and Equipment: COMBUSTIBLE, VERY TOXIC, CORROSIVE. Workers using this chemical must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Keep away from heat, hot surfaces, sparks, flame, and all ignition sources. Avoid release of mist or vapours into the air. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Avoid inhaling vapour. Avoid contact with skin, eyes, and clothing. Handle with extreme care. Keep work area clean and free of extraneous materials. Do not use on porous surfaces (wood); use surfaces that can be easily and thoroughly cleaned. Clean up spills immediately and thoroughly. Keep containers closed when not in use and when empty. Wash

thoroughly after handling. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements: Store in labelled, polyethylene, polyester or stainless steel containers, in a refrigerated area (< 10°C). Store away from incompatible materials, and heat and ignition sources. Keep tightly closed. Limit quantity in storage. Protect from damage and inspect frequently for signs of leaking. Provide raised sills or ramps at doorways or create a trench which drains to a safe location. Have appropriate fire extinguishers and spill clean-up equipment in storage area.

FIRST AID MEASURES

Specific Measures:

Eyes: IMMEDIATELY flush eyes with gently running water for at least twenty to thirty (20-30) 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, watches, belts, and rings. If clothing sticks to skin, cut around and remove rest of the garment). Immediately drench the exposed area with large amounts of running water for at least twenty to thirty (20-30) minutes, taking particular care to clean folds and creases. Wear impervious gloves to avoid contact during first aid procedures. Continue flushing until medical help is available. Get MEDICAL ATTENTION IMMEDIATELY. Discard contaminated clothing.

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 casualty is conscious, maintain in sitting position (lung congestion may occur). If breathing has STOPPED give artificial respiration use mouth guard to avoid possible contact with chemical. If breathing AND pulse are ABSENT, give CPR. IMMEDIATELY CONTACT A PHYSICIAN. Stay with casualty until medical help arrives. Second rescuer should obtain oxygen equipment and ambulance.

Ingestion: DO NOT INDUCE VOMITING. If casualty is alert and not convulsing; rinse mouth with water and give 1 to 2 cups of water or milk to dilute material. IMMEDIATELY OBTAIN MEDICAL ATTENTION. Continue giving repeated drinks of water (1 cup every 10 minutes). If SPONTANEOUS VOMITING occurs; have casualty lean forward with head down to avoid breathing in of vomitus. Rinse mouth and administer more water or milk.

REFERENCES USED

CCINFO disc: Cheminfo

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

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987
Royal Society of Chemistry: Chemical Safety Data Sheets, Vol 4b, 1991

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: June 17, 1991

Revision: February 2011

MSDS: 4980-5

Proposed WHMIS Designation: D1A; E

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