

OXALIC ACID DIHYDRATE

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** Oxalic acid (dihydrate);

Ethanedioic acid

Chemical Family: Saturated aliphatic carboxylic acid**Chemical Formula:** (COOH)₂·2H₂O**Product Use:** Laboratory reagent**Manufacturers 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****Ingredients, %, TLV Units, CAS No:** Oxalic acid (dihydrate), > 99, 1 mg/m³, 6153-56-6**PHYSICAL DATA****Physical State:** Solid**Odour and Appearance:** Transparent, colourless crystals; odourless**Odour Threshold (ppm):** Not applicable.**Vapour Pressure (mm Hg):** < 0.001 mm Hg at 20 °C**Vapour Density (Air = 1):** Not applicable.**Evaporation Rate:** Not available (very low)**Boiling Point (degrees C):** 149 °C to 160 °C**Melting Point (degrees C):** 101.5 °C (sublimation begins at 100 °C)**pH:** 1.3 (0.1 M, aqueous)**Specific Gravity:** 1.65**Coefficient of Water/Oil distribution:** LogP(oct) = -0.81**SHIPPING DESCRIPTION****UN:** Not regulated.**T.D.G. Class:** Not regulated.**Pkg. Group:** Not regulated.**REACTIVITY DATA****Chemical Stability:** Normally stable. At melting point, sublimation and decomposition occur.**Incompatibility with other substances:** Reacts vigorously with bases. Reacts violently or explosively with oxidizers, acid chlorides, alkali metals. May form explosive silver oxalate in contact with silver. Reacts vigorously with iron and iron compounds. In solution, corrodes metals.**Reactivity:** Avoid temperatures above 85 °C. Avoid moisture, all incompatible materials, generation of dust. Dry mixture of oxalic acid and sodium chlorite may explode on addition of water.**FIRE AND EXPLOSION DATA****Flammability:** Not combustible, however fine dust dispersed in air in the presence of an ignition source is a potential dust explosion hazard.**Extinguishing Media:** Carbon dioxide, dry chemical powder, water spray or alcohol foam. Foam or water on molten oxalic acid may cause frothing. Use water to cool fire-exposed containers, to disperse dust or fumes, and to flush spill away from fire. Fight fire from a safe distance and from upwind. Firefighters must wear positive-pressure, full face-piece self-contained breathing apparatus, and chemical splash suit.**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:** COx, formic acid**Sensitivity to Impact:** None identified.**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD50:** 50 mg/kg - 500 mg/kg (human), (oral, female rat) 375 mg/kg; (dermal, rabbit) 20,000 mg/kg**LC50:** Not available.**Effects of Acute Exposure to Product:****Inhaled:** Dust or solution irritates upper respiratory tract, causing burning sensation, coughing, shortness of breath. Readily absorbed, causing nausea, vomiting, headache, ulceration of mucous membranes, kidney damage.**In contact with skin:** Solutions of 5 % to 10 % are irritating, may burn and damage skin, causing localized pain and discoloration.

Prolonged exposure can cause burns and ulceration. Can be absorbed through skin, producing systemic effects as in inhaled.

In contact with eyes: Severe eye irritant. Can cause redness, tearing, pain and damage to the cornea. If contact is prolonged, damage may be irreversible.**Ingested:** Poisonous. Small doses can cause headache, pain and twitching in muscles. Ingestion of 10 % solutions or the solid can cause severe internal pain, drop in blood pressure, collapse, coma and death. Reported lethal dose for an adult human is 5 g. A delayed effect of ingestion is kidney damage and renal failure.**Effects of Chronic Exposure to Product:** Prolonged or repeated exposure, by ingestion, skin absorption or inhalation, may cause damage to kidneys, and kidney stones. Prolonged skin contact can cause discoloration of the skin and fingernails, and possibly ulcers and gangrene.**Carcinogenicity:** No information available.**Teratogenicity:** No evidence of embryotoxicity in animal testing.**Reproductive Effects:** No information available.**Mutagenicity:** No information available.**Synergistic Products:** None known.**PREVENTIVE MEASURES****Engineering Controls:** Corrosion-resistant exhaust ventilation, separate from other ventilation systems.**Respiratory Protection:** Use only in a chemical fumehood. Up to 25mg/m³ - NIOSH/MSHA approved powered air-purifying respirator with dust and mist filter, or continuous-flow supplied-air respirator. Up to 50 mg/m³ - full face-piece respirator with high-efficiency particulate filter or full face-piece self-contained breathing apparatus. Up to 500 mg/m³ - full face-piece positive pressure supplied-air respirator. For higher or unknown concentrations, as in fire or spill conditions; positive pressure, full face-piece self-contained breathing apparatus, or positive pressure, full face-piece supplied-air respirator with auxiliary positive pressure self-contained breathing apparatus.**Eye Protection:** Chemical safety goggles, face shield.

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Skin Protection: Viton, PVC, Silver Shield/4H (polyethylene/ethylene vinyl alcohol), nitrile, neoprene, butyl or natural rubber gloves. Other impervious protective clothing, sleeves, coveralls, boots, sufficient to prevent skin contact.

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

Leak and Spill Procedure: Evacuate and ventilate area. Cleanup personnel must be thoroughly trained in the hazards of this chemical and its safe use, and must wear protective equipment and clothing sufficient to prevent inhalation and contact. Isolate from incompatible materials. Do not touch spilled material. Prevent from entering sewers or waterways. Mix with inert absorbent material and collect in suitable, labelled containers. Contaminated absorbent may pose the same hazards as the chemical; treat with caution. Flush area of spill with copious amounts of running water.

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

Handling Procedures and Equipment: TOXIC, CORROSIVE.

Persons working with this material must be thoroughly trained in its hazards 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. Keep work area free of extraneous or incompatible materials. Always add acid to water, not water to acid. Avoid generating dust. Avoid all contact. Wash thoroughly after handling. Do not use near sources of ignition; although this compound is not flammable, it may release flammable gases under certain conditions. Do not get in eyes, on skin, or on clothing. Caution - empty containers may contain hazardous residues.

Storage Requirements: Store below 35 °C. Store in non-metallic, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight and away from incompatible materials. Walls, floors, shelving, lighting and ventilation systems should be made of corrosion resistant materials (teflon, glass, ceramic-lined steel). Keep containers tightly closed. Protect from damage, and inspect frequently for damage or leaking.

FIRST AID MEASURES

Specific Measures:

Eyes: Wash eyes with plenty of running water for at least thirty (30) minutes, holding eyelids open while flushing. Wear protective gloves to avoid contact during first aid procedures. Take care not to flush contaminated water into the unaffected eye. Get medical attention immediately.

Skin: Remove any contaminated clothing (including watches, rings, belts, and shoes). Wear protective gloves to avoid contact during first aid procedures. Wipe off excess from skin. Wash skin with soap and running water for at least twenty (20) minutes, or until no trace of chemical remains. Get medical attention.

Inhalation: Remove patient to fresh air. Give oxygen for breathing difficulty. Give artificial respiration if breathing is stopped (avoid mouth to mouth contact). If there is no heartbeat, begin CPR immediately. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion: If victim is alert and not convulsing, rinse mouth thoroughly with water and give 2 to 4 glasses of water to drink to dilute. Do not induce vomiting. Get medical attention immediately. If spontaneous vomiting occurs, have victim lean forward to avoid aspirating vomitus. Rinse mouth and administer more water. Give artificial respiration if breathing is stopped (avoid mouth to mouth contact). If there is no heartbeat, begin CPR immediately.

Note to physician: Intravenous administration of calcium gluconate or calcium chloride may be required if hypocalcemia or hypocalcemic tetany occur.

REFERENCES USED

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

CCINFO disc: MSDSs, May 2007

Sax, Lewis: Hawleys Condensed Chemical Dictionary, 11th ed., 1987

Suppliers Material Safety Data Sheets:

ADDITIONAL INFORMATION

Date Issued: 25-Nov-91

Revision: May 2013

Proposed WHMIS Designation: D1B; E

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