

**MATERIAL SAFETY DATA SHEET****2-METHOXYETHANOL**

PRODUCT CODE NUMBER(S): 7200-1, 7200-4, 7201-2

**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:** 2-Methoxyethanol; Methyl cellosolve; Ethylene glycol monomethyl ether**Chemical Family:** Aliphatic glycol monoether**Chemical Formula:** CH<sub>3</sub>OC<sub>2</sub>H<sub>4</sub>OH**Product Use:** Laboratory solvent**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**

Ingredients	%	TLV Units	CAS No.
2-Methoxyethanol (skin exp may contribute to exposure)	>99	5 ppm	109-86-4

**PHYSICAL DATA****Physical State:** Liquid**Odour and Appearance:** Water-white liquid with a mild, characteristic odour.**Odour Threshold (ppm):** 0.096 -61 ppm (detection); 0.22-90 ppm. Poor warning properties, values vary widely.**Vapour Pressure (mm Hg):** 6.2 mm Hg at 20°C**Vapour Density (Air = 1):** 2.62**Evaporation Rate (Bu ac = 1):** 0.53**Boiling Point (°C):** 124°C**Freezing Point (°C):** -85°C**pH:** Not available, probably neutral**Specific Gravity:** 0.9647 @ 20°C**Coefficient of Water/Oil distribution:** Log P(oct) = -77**SHIPPING DESCRIPTION****UN:** 1188**T.D.G. Class:** 3**Pkg. Group:** III**REACTIVITY DATA****Chemical Stability:** Stable. Can react with air to form explosive peroxides. Reacts more readily in sunlight.**Incompatibility with other substances:** Forms ester compounds with acid chlorides, acid anhydrides. Reacts vigorously or violently, with increased risk of fire or explosion, with oxidizers, strong acids, bases, or caustics. Will attack some forms of plastics, rubbers, and coatings.**Reactivity:** Avoid temperatures above 39°C, all ignition sources. static charge. Protect from moisture, air, sunlight. Do not distill or evaporate to dryness. Avoid generation of mist or vapour.**Hazardous Decomposition Products:** Peroxides, acetaldehyde, methanol, CO<sub>x</sub>**FIRE AND EXPLOSION DATA****Flammability:** Combustible liquid and vapour. Vapour is heavier than air and may travel to distant source of ignition and flash back. May form explosive mixtures in air at or above 39°C. May form explosive peroxides. Can accumulate in confined spaces, resulting in a flammability and toxicity hazard. Closed containers may rupture violently when heated.**Extinguishing Media:** Dry chemical, carbon dioxide, alcohol-resistant foam, water spray or fog. Water spray or fog may be used to cool containers, disperse vapours, flush spill away from ignition source, or dilute spill to non-flammable mixture. Fight fire from upwind, from a safe distance. Firefighters must wear NIOSH approved positive-pressure, full face-piece self-contained breathing apparatus, and chemical splash suit (Bunker gear will not be adequate). Containers may explode in heat of fire; withdraw immediately in case of rising sound from vent or discoloration of tank.**Flash Point (Method Used):** 39°C (CC)**Autoignition Temperature:** 285°C**Upper Flammable Limit (% by volume):** 14**Lower Flammable Limit (% by volume):** 1.8**Hazardous Combustion Products:** CO<sub>x</sub>**Sensitivity to Impact:** None identified**Sensitivity to Static discharge:** Liquid will probably not accumulate static charge. Mixtures of vapour with air may be ignited by static discharge under certain conditions.**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD<sub>50</sub>:** (oral, rat) 2,370 mg/kg; (oral, rabbit) 890 mg/kg; (dermal, rabbit) 1,300 mg/kg/24h**LD<sub>Lo</sub>:** (oral, hum) 3,380 mg/kg**LC<sub>50</sub>:** (irat) 1,400 ppm/7h**Effects of Acute Exposure to Product:****Inhaled:** Toxic. Vapours are irritating to the eyes, nose, throat and respiratory tract. May cause central nervous system (CNS) depression, liver and kidney damage, suppression of the immune system and bone marrow depression. Severe overexposure can cause coma and death.**In contact with skin:** Not expected to be irritating, based on animal information. May be absorbed through intact skin, causing symptoms as in "Inhaled", if exposure is extensive. Prolonged and repeated contact may cause mild skin irritation.**In contact with eyes:** Insufficient human or animal information available. Liquid or vapour may cause irritation, conjunctivitis, and clouding of the cornea.**Ingested:** May be fatal if swallowed. Causes irritation of the mouth, throat, and respiratory tract, nausea, vomiting and abdominal pain, central nervous system depression, liver and kidney damage, suppression of the immune system and bone marrow depression. Aspiration, which may occur during ingestion or vomiting, can cause severe, life-threatening pulmonary edema.**Effects of Chronic Exposure to Product:**

Prolonged or repeated inhalation or skin exposure can cause central nervous system depression, with headache, drowsiness,

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lethargy, personality changes and loss of appetite, liver and kidney damage, suppression of the immune system and bone marrow depression. Effects are usually reversible on cessation of exposure.

**Carcinogenicity:** No human or animal information available

**Teratogenicity:** No human information available. Fetotoxicity, skeletal and cardiovascular defects were observed in the offspring of exposed female rats and rabbits (RTECS No. KL5775000) at doses below maternal toxic levels.

**Reproductive Effects:** Human testing inconclusive, but bacteria, yeast animal studies show adverse effects on the reproductive system including testicular changes in male animals and decreased fertility in both male and female animals.

**Mutagenicity:** No human information available. Animal test results inconclusive. Negative in tests with cultured mammalian cells, bacteria, yeast.

**Synergistic Products:** None known

## PREVENTIVE MEASURES

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

**Respiratory Protection:** Fumehood. To 1 ppm: NIOSH approved supplied-air respirator. To 2.5 ppm: continuous-flow supplied-air respirator. To 5 ppm: full face-piece supplied-air respirator. To 100 ppm: positive-pressure supplied-air respirator. To 200 ppm: positive-pressure full face-piece supplied-air respirator. Higher or unknown concentrations, as in fire or spill conditions: full face-piece, positive-pressure self-contained breathing apparatus or positive-pressure, full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus.

**Eye Protection:** Chemical goggles and/or face shield.

**Skin Protection:** Butyl rubber, Barrier (PE/PA/PE), Tychem BR/LV, Tychem TK gloves. Other impermeable protective clothing, apron, coveralls, boots, sufficient to prevent contact.

**Other Personal Protective Equipment:** Eye wash and safety shower in work area.

**Leak and Spill Procedure:** Restrict access to area of spill. Ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the hazards of the product and must wear protective equipment and clothing sufficient to prevent inhalation of mists or vapours and contact with skin and eyes. Dike spills. Prevent from entering sewers or waterways. Collect on inert absorbent material and transfer to suitable, labelled, covered containers for recovery or disposal. Contaminated material 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:** COMBUSTIBLE; TOXIC; POSSIBLE TERATOGEN. Eliminate all sources of ignition and have all engineering controls operating before handling. Workers must be thoroughly trained in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing. Can form potentially explosive peroxides which may explode upon concentration by distillation. Test for peroxides before distilling. Ground and bond equipment to prevent static charge accumulation. Sudden release of hot vapours may result in ignition. Published autoignition values may not be valid in some chemical processes. Actual process conditions must be analysed to establish safe operating temperatures. Use the smallest amount possible for the purpose, in a design-

ated area with adequate ventilation. Avoid contact with skin and eyes, and inhalation of mist or fumes.

**Storage Requirements:** Store in a cool, well-ventilated area out of sunlight and away from all ignition sources. Keep storage area free of combustible materials and incompatible materials such as strong oxidizers. Storage facilities should be made of fire-resistant materials, and have raised sills and be trenched to safe location. Keep containers tightly closed. Use drums on a first in, first out basis. Protect from damage. Inspect frequently for signs of damage or leaking.

## FIRST AID MEASURES

### Specific Measures:

**Eyes:** Immediately flush eyes with gently running water for five to ten (5-10) minutes, holding eyelids open during flushing, or until no trace of chemical remains. Take care not to flush contaminated water into unaffected eye. Wear protective gloves and other clothing to avoid contact. Get medical attention.

**Skin:** Under running water, remove contaminated clothing (including shoes, watches, belts, and rings). Immediately flush the exposed area with large amounts of running water for five to ten (5-10) minutes, or until no trace of chemical remains. Wear protective gloves and other clothing to avoid contact. Get medical attention. Decontaminate clothing before reuse, or discard.

**Inhalation:** IMMEDIATELY remove to fresh air (use caution to avoid exposure to contaminating fumes). Get medical attention immediately. Give oxygen for breathing difficulty. If breathing has STOPPED give artificial respiration (avoid direct mouth-to-mouth contact; use mouth guard). If breathing and pulse are absent begin CPR. Stay with casualty until medical assistance is obtained.

**Ingestion:** DO NOT INDUCE VOMITING; danger of aspiration with vomiting. If the casualty is alert and not convulsing, give 2 to 3 glasses of water to drink to dilute. Get medical attention immediately. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water. If breathing has stopped give artificial respiration (see above, "Inhalation"). If breathing and pulse are absent, begin CPR.

## REFERENCES USED

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

Royal Society of Chemistry, Chemical Safety Data Sheets, Vol. 1, 1992

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

Sax: Dangerous Properties of Industrial Chemicals, 5th ed., 1979  
Suppliers' Material Safety Data Sheets

## ADDITIONAL INFORMATION

**Date Issued:** November 15, 1988

**Revision:** July 2010

**MSDS:** 7200-1, 7200-4, 7201-2

**Proposed WHMIS Designation:** B3; D1B; D2A

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