

**MATERIAL SAFETY DATA SHEET****2-METHYL-1-PROPANOL**

PRODUCT CODE NUMBER(S): 2600-1, 2600-4, 2601-2

**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:** 2-Methyl-1-propanol; Isobutyl alcohol; Isobutanol;**Chemical Family:** Alcohols**Chemical Formula:** (CH<sub>3</sub>)<sub>2</sub>CHCH<sub>2</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.
Isobutyl alcohol	>99	100 ppm	78-83-1

**PHYSICAL DATA****Physical State:** Liquid**Odour and Appearance:** Colourless liquid with a sweet, musty odour**Odour Threshold (ppm):** 0.6-40 ppm (detection); 2-53ppm (recognition); 100 ppm (irritation). Not good warning properties; odour threshold about the same as TLV.**Vapour Pressure (mm Hg):** 8 mm Hg at 20°C**Vapour Density (Air = 1):** 2.6**Evaporation Rate (butyl acetate=1):** 0.82**Boiling Point (°C):** 108°C**Freezing Point (°C):** -108°C**pH:** Probably neutral**Specific Gravity:** 0.803 at 20°C**Coefficient of Water/Oil distribution:** LogP=0.65**SHIPPING DESCRIPTION****UN:** 1212**T.D.G. Class:** 3**Pkg. Group:** III**REACTIVITY DATA****Chemical Stability:** Stable**Incompatibility with other substances:** Increased risk of fire and explosion with oxidizing agents. Oxidizes vigorously with chromium dioxide, with ignition. Mixtures with barium perchlorate, chlorine, ethylene oxide, isocyanates, hydrogen peroxide, strong acids, acid chlorides, acid anhydrides may explode. May attack some plastic, rubber and coatings.**Reactivity:** Avoid heat, sparks, flame, and all ignition sources.**Hazardous Decomposition Products:** CO<sub>x</sub>**FIRE AND EXPLOSION DATA****Flammability:** Flammable liquid and vapour. Vapours form explosive mixtures with air at, or above, 28°C. Vapour is heavier than air and may travel to distant sources of ignition and flash back.**Extinguishing Media:** Water fog; CO<sub>2</sub>; alcohol-resistant foam; dry chemical. Water may be used to cool containers and disperse vapours but will be ineffective for extinguishing fire because it may not cool liquid below flash point. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment and clothing sufficient to prevent inhalation of mists and vapours and contact with skin and eyes. Closed containers may explode in heat of fire; withdraw immediately in case of rising sound from venting device, or discolouration in container.**Flash Point (Method Used):** 28°C (TCC)**Autoignition Temperature:** 415°C**Upper Flammable Limit (% by volume):** 10.6%**Lower Flammable Limit (% by volume):** 1.7%**Hazardous Combustion Products:** CO<sub>x</sub>**Sensitivity to Impact:** None identified**Sensitivity to Static discharge:** Liquid will not accumulate static charge. Vapour in the explosive range can probably be ignited by static discharge.**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD<sub>50</sub>:** (oral, rat) 2,460 mg/kg; (dermal, rabbit) 2,000 mg/kg**LC<sub>50</sub>:** (rat) 8,000 ppm 4 hours**Effects of Acute Exposure to Product:****Inhaled:** Vapours are irritating and destructive to tissues of the eyes, nose, throat and respiratory tract. May cause burning, coughing, shortness of breath. Higher levels may cause headache, nausea and vomiting, central nervous system depression and possible unconsciousness.**In contact with skin:** Causes defatting, drying and cracking of the skin. Immersion of the hands for 15 minutes caused only slight irritation and erythema in human volunteers.**In contact with eyes:** No human information available. Based on animal information, vapour and liquid may cause moderate to severe irritation, redness, tearing, pain, blurred vision. Related alcohols are severe eye irritants.**Ingested:** May cause irritation and burning of the mouth and throat, abdominal pain, and alcoholic intoxication with headache, dizziness and central nervous system depression. In severe cases, breathing difficulty, unconsciousness, liver and kidney damage may occur. Aspiration into the lungs may cause severe lung damage, respiratory and cardiac arrest and possible death. Aspiration of small amounts can result in respiratory failure and cardiac arrest**Effects of Chronic Exposure to Product:**

Some workers exposed to high levels for prolonged periods experienced CNS depression (nausea, dizziness, vomiting),

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ringing in the ears. Prolonged and repeated skin contact may lead to dermatitis.

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

**Teratogenicity:** No information available

**Reproductive Effects:** No information available

**Mutagenicity:** No human information available. Effects in bacterial testing are inconclusive.

**Synergistic Products:** Toxicity of alcohols is increased by exposure to chlorinated solvents and aromatic hydrocarbons.

## 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:** To 500 ppm: chemical cartridge respirator with organic vapour cartridges. To 1,250 ppm: Supplied-air respirator operated in continuous-flow mode, or powered air-purifying respirator with organic vapour cartridges. To 1,600 ppm: full face-piece self-contained breathing apparatus, or full face-piece supplied-air respirator. Higher or unknown concentrations, or for 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 goggles and/or face shield.

**Skin Protection:** Viton™, butyl rubber, neoprene, Responder™ Viton™/butyl rubber, Barrier (PE/PA/PE) gloves. Other protective clothing, apron, sleeves, coverall, and/or boots as required to prevent contact.

**Other Personal Protective Equipment:** Eyewash fountain and safety shower in work area.

**Leak and Spill Procedure:** Evacuate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the handling of this hazardous substance and must wear protective equipment and clothing sufficient to prevent inhalation and contact with skin and eyes. Stop and contain discharge by constructing barriers or applying inert absorbent. Do not touch spill material. Prevent from entering sewers, waterways or confined spaces. Collect product and contaminated soil and water and place in covered containers for recovery or disposal. Flush area of spill thoroughly with water.

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

**Handling Procedures and Equipment:** FLAMMABLE, TOXIC, Workers handling this material must be thoroughly trained in its hazards and its safe use. Keep away from heat, sparks and open flame. Post "No Smoking" signs. Bond and ground containers during liquid transfer. Use non-sparking ventilation systems and electrical equipment. Avoid generating mists or vapours. Avoid splash filling. Avoid generating mist. Concentrated vapours are heavier than air and will collect in low areas such as pits and other confined areas. Do not enter these areas where vapour of this product is suspected unless special breathing apparatus is used. Use the smallest amount possible for the purpose in a designated area with adequate ventilation. Keep work area free of incompatible substances. Do not return contaminated material to the original containers. Treat empty containers with caution; they may contain hazardous residues.

**Storage Requirements:** Store in suitable, labelled containers, in a cool, dry, well ventilated area, out of direct sunlight, and away from combustible or incompatible materials and all

ignition sources. Storage area should be constructed of fire-resistant materials, and have raised sills or ramps, with trenching to a safe area. Do not expose sealed containers to temperatures above 49°C. Keep containers closed when not in use. Inspect regularly for signs of leaking or damage. It is good practice to seal the floors of the storage area to prevent absorption.

## FIRST AID MEASURES

### Specific Measures:

**Eyes:** Immediately flush eyes with gently running water for at least twenty (20) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into the unaffected eye. Get medical advice immediately.

**Skin:** Remove contaminated clothing (including shoes, watches, belts, and rings). Wash affected areas with large amounts of running water and non-abrasive soap, for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation persists, get medical attention. Decontaminate clothing before reuse, or discard.

**Inhalation:** Remove to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Eliminate all ignition sources. If breathing is difficult, give oxygen. If breathing has stopped give artificial respiration. IMMEDIATELY OBTAIN MEDICAL ATTENTION. Stay with casualty until medical assistance is reached.

**Ingestion:** DO NOT INDUCE VOMITING (danger of severe lung damage if aspiration occurs). If casualty is alert and NOT convulsing, rinse out mouth with water and give 1 to 2 glasses of water to drink to dilute material. Immediately get medical attention. If spontaneous vomiting occurs have casualty lean forward with head down to avoid breathing in of vomitus.

## REFERENCES USED

CCINFO disc: Cheminfo, MSDS's

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

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

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:** November 15, 1988

**Revision:** November 2010

**MSDS** 2600-1, 2600-4, 2601-2

**Proposed WHMIS Designation:** B2: D2B (irritant)

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