MATERIAL SAFETY DATA SHEET

1-PROPANOL

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: 1-Propanol. n-Propyl alcohol. Propylic alcohol. Ethyl-carbinol.
Chemical Family: Primary aliphatic alcohol
Chemical Formula: $CH_3CH_2CH_2OH$
Product Use: Laboratory solvent
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: n-Propyl alcohol, 99, 200 ppm (includes skin exposure), 71-23-8

PHYSICAL DATA

Physical State: Liquid
Odour and Appearance: Clear, colourless, mobile liquid with mild alcoholic odour
Odour Threshold (ppm): Varies widely, 0.031 ppm to 41 ppm (detection); 0.081 ppm to 61 ppm (recognition). Good warning properties, TLV well above odour threshold.
Vapour Pressure (mm Hg): 15 mm Hg at 20 °C
Vapour Density (Air = 1): 2.07 at 20 °C
Evaporation Rate (Bu ac = 1): 1.3
Boiling Point (degrees C): 97.2 °C
Freezing Point (degrees C): -126.6 °C
pH: Not available.
Specific Gravity: 0.804 at 20 °C
Coefficient of Water/Oil distribution: LogP(oct) = 0.25

SHIPPING DESCRIPTION

UN: 1274
T.D.G. Class: 3
Pkg. Group: II

REACTIVITY DATA

Chemical Stability: Normally stable.
Incompatibility with other substances: Strong oxidizing agents. Vigorous or violent reaction with strong acids, acid chlorides, acid anhydrides, halogens and halogen compounds. Gives off flammable hydrogen gas with alkali or alkali earth metals. Mixtures with potassium tert-butoxide may ignite. May react explosively with barium perchlorate, chlorine, hypochlorous acid, ethylene oxide, permonosulphuric acid, or tri-isobutyl aluminum. Not corrosive to metals at normal termperatures; is corrosive to aluminum above 38 °C. May attack some forms of plastics, rubbers and coatings.
Reactivity: Avoid high temperatures, ignition sources, incompatible materials, generation of mist.

FIRE AND EXPLOSION DATA

Flammability: FLAMMABLE LIQUID AND VAPOUR. Vapors can travel to a source of ignition and flash back. Vapour may form explosive mixtures in air. Containers may explode in a fire.
Extinguishing Media: CO_2, dry chemical, alcohol foam. Use water as spray or fog to absorb heat, cool containers, and disperse vapours. Fight fire from a safe distance and from upwind. Firefighters should wear self-contained breathing apparatus and protective clothing sufficient to prevent contact. Containers may explode in a fire.
Flash Point (Method Used): 15 °C (CC)
Autoignition Temperature: Reported values vary widely, 371 °C to 440 °C
Upper Flammable Limit (% by volume): 13.7
Lower Flammable Limit (% by volume): 2.2
Hazardous Combustion Products: CO, CO_2
Sensitivity to Impact: None identified.
Sensitivity to Static discharge: Mixtures of vapour and air at concentrations in the flammable range may be ignited by static discharge. Liquid will probably not accumulate static charge.
NFPA Hazard Class: Health: 1 ; Flammability: 3 ; Reactivity: 0

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:
LD50: (oral, rat) 1,870 mg/kg; (oral, young male rat) 560 mg/kg; (dermal, rabbit) 4,000 mg/kg
LC50: (rat) 4,000 ppm/4h (2/6 died)
Effects of Acute Exposure to Product:
Inhaled: No harmful effects expected. Based on animal information, and information about related alcohols, exposure to high vapour concentrations may cause respiratory tract irritation, headache, dizziness, nausea, incoordination, drowsiness and eventual loss of consciousness and death.
In contact with skin: No reports of irritation or toxic effects in human and animal testing. May be absorbed through skin, but in small amounts that are unlikely to cause toxic effects.
In contact with eyes: May cause severe irritation, conjunctivitis, corneal burns, based on animal testing. No human information available.
Ingested: May cause irritation and burning of the mouth and throat, nausea, dizziness, abdominal pain, and CNS depression. A normal component of food and alcoholic beverages; ingestion is not a normal route of occupational exposure. Aspiration may occur during ingestion or vomiting, and can cause serious lung damage, pulmonary edema, and death.
Effects of Chronic Exposure to Product: Prolonged contact may cause dermatitis. There are no reports of other health effects from long-term exposure.
Carcinogenicity: Carcinogenic to laboratory animals in conditions not considered relevant to occupational exposure (ACGIH-A3). Not likely to cause cancer to humans except under unusual conditions. Exposure to A3 carcinogen should be kept as low as is possible.
Teratogenicity: No human information available. Has produced effects in animal testing, at maternally toxic levels.
Reproductive Effects: No human information available. Has produced male effects, inlcuding reduced fertility in animal testing.
Mutagenicity: Negative in in vitro mammalian tests. Both positive and negative results in bacterial testing.
Synergistic Products: Alcohols may react synergistically with chlorinated solvents, aromatic hydrocarbons, or dithiocarbamates.

PREVENTIVE MEASURES

Caledon Laboratories, Ltd. believes that the information contained herein is reliable and accurate. Caledon makes no warranty thereto, and expressly disclaims all liability for reliance thereon. Such information is solely for your consideration, investigation, and verification.

Engineering Controls: Non-sparking, grounded ventilation separate from other exhaust ventilation systems.
Respiratory Protection: Up to 800 ppm - NIOSH/OSHA approved chemical cartridge respirator equipped with organic vapour cartridges, or powered air-purifying respirator with organic vapour cartridges, or supplied-air respirator. For emergency or unknown concentrations, positive pressure, full-facepiece self-contained breathing apparatus.
Eye Protection: Chemical safety goggles, face shield.
Skin Protection: Butyl or nitrile rubber, Viton gloves.
Other Personal Protective Equipment: Safety shower and eye wash fountain readily available in work area.
Leak and Spill Procedure: Evacuate and ventilate area. 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 any contact or inhalation. Stop leak if it is safe to do so. Contain spill with inert absorbent material. Do not touch spilled material or contaminated absorbent. Prevent from entering sewers and waterways. Contaminated absorbent may pose the same hazards as the product. Flush area of spill thoroughly with copious amounts of running water.
Waste Disposal: Dispose of in compliance with local, provincial and federal regulations.
Handling Procedures and Equipment: FLAMMABLE, EYE IRRITANT. Before working with this product, ensure that engineering controls are operating and that proper protective clothing and equipment is being used. Workers using this chemical must be properly trained in its hazards and its safe use. Wear appropriate protective clothing and equipment. Post NO SMOKING signs. Ground and bond equipment and containers to prevent a static charge buildup. Use non-sparking tools. Avoid splash filling. Keep well away from combustible and incompatible materials. Use the smallest amount possible for the purpose in an area with adequate ventilation. Avoid contact. Avoid inhalation. Avoid generating dust or vapours. Empty containers may contain hazardous residues; treat with caution.
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. Inspect regularly for signs of leaking or damage. Keep well away from combustible and incompatible materials. Post NO SMOKING signs. Have appropriate fire extinguishers and spill cleanup equipment near the storage area. Ground and bond equipment and containers to prevent a static charge buildup. Storage facilities should be made of fire-resistant materials. Provide raised sills and trenches to drain to a safe area.

FIRST AID MEASURES

Specific Measures:
Eyes: Immediately flush eyes with gently running water for fifteen to twenty (15 to 20) minutes, holding eyelids open during flushing. Avoid flushing contaminated water into unaffected eye. Get medical attention immediately.
Skin: Remove contaminated clothing. IMMEDIATELY flush exposed area with large amounts of warm running water for at least twenty (20) minutes. If irritation persists, get medical attention.
Inhalation: Remove to fresh air. Give oxygen and get medical attention for any breathing difficulty.
Ingestion: Do not induce vomiting. Danger of aspiration with vomiting. If victim is alert and NOT convulsing, rinse mouth, give several glasses of water to drink to dilute. If vomiting occurs, keep head below hips to help prevent aspiration. Rinse mouth and give more water to drink.

REFERENCES USED

Budavari: The Merck Index, 12th ed., 1997
CCINFO disc: Cheminfo
Royal Society of Chemistry: Chemical Safety Data Sheets, Vol. 1, 1992
Sax, Lewis: Hawleys Condensed Chemical Dictionary, 11th ed., 1987
Suppliers Material Safety Data Sheets:

ADDITIONAL INFORMATION

Date Issued: 01-Nov-88
Revision: Mar 2015
Proposed WHMIS Designation: B2; D2B (eye irritation)
Prepared by: Caledon Laboratories Ltd. (905) 877-0101

Caledon Laboratories, Ltd. believes that the information contained herein is reliable and accurate. Caledon makes no warranty thereto, and expressly disclaims all liability for reliance thereon. Such information is solely for your consideration, investigation, and verification.