

1-PROPANOL**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:**

1-Propanol; n-Propyl alcohol; Propylic alcohol; Ethyl-carbinol

Chemical Family:

Primary aliphatic alcohol

Chemical Formula:

CH₃CH₂CH₂OH

Product Use:

Laboratory solvent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.

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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
n-Propyl alcohol	99	200 ppm	71-23-8
<i>(includes skin exposure)</i>			

PHYSICAL DATA**Physical State:**

Liquid

Odour and Appearance:

Clear, colourless, mobile liquid with mild alcoholic odour

Odour Threshold (ppm):

Varies widely, 0.031 to 41 ppm (detection); 0.081 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 (n-bu ac) = 1:

1.3

Boiling Point (°C):

97.2°C

Freezing Point (°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:

Increased risk of fire and explosion with 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 temperatures; is corrosive to aluminum above 38°C. May attack some forms of plastics, rubber, coatings.

Reactivity:

Avoid high temperatures, sparks, open flames, all sources of ignition, all incompatible materials, generation of mist or vapour.

Hazardous Decomposition Products:

CO₂ and CO

FIRE AND EXPLOSION DATA**Flammability:**

Flammable liquid and vapour. Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Vapours form explosive mixtures with air, at, or above 15°C. Closed containers can rupture violently when heated.

Extinguishing Media:

CO₂, dry chemical powder, alcohol-resistant foam. Water spray or fog may be used to cool containers, disperse vapours, and flush material away from fire, but will be ineffective for fighting fire. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (NIOSH/OSHA approved positive-pressure, full face-piece self-contained breathing apparatus) and encapsulating chemical splash suit to prevent any inhalation or contact with this chemical. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.

Flash Point (Method Used):

15°C (CC)

Autoignition Temperature:

Reported values vary widely, 371 to 440°C

Upper Flammable Limit (% by volume):

13.7

Lower Flammable Limit (% by volume):

2.2

Hazardous Combustion Products:

CO₂, CO

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 has high electrical conductivity and will probably not accumulate static charge.

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 reports of harmful effects from occupational exposure.

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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 is unlikely to cause harmful effects by skin absorption.

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 during ingestion or vomiting can result in severe life-threatening lung damage, chemical pneumonitis, or pulmonary edema.

Effects of Chronic Exposure to Product:

Prolonged and repeated contact may lead to 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:

Has produced effects in animal testing, at maternally toxic levels. No human information available.

Reproductive Effects:

Has produced male effects, including reduced fertility in animal testing. No human information available.

Mutagenicity:

Negative in in vitro mammalian tests. Both positive and negative results in bacterial testing.

Synergistic Products:

Alcohols may react synergistically with chlorinated solvents (e.g. carbon tetrachloride, chloroform) or dithiocarbamates (e.g. disulphiram, thioacetamide)

PREVENTIVE MEASURES

Engineering Controls:

Non-sparking, grounded, separate, exhaust ventilation required.

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. 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 an auxiliary positive-pressure self-contained breathing apparatus.

Eye Protection:

Chemical safety goggles and/or face shield.

Skin Protection:

Butyl or nitrile rubber, Viton™ gloves. Other protective clothing, coat, coveralls, sleeves, boots, sufficient to prevent contact

Other Personal Protective Equipment:

Safety shower and eye bath located close to chemical exposure area.

Leak and Spill Procedure:

Evacuate and ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the hazards of this material and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists, and contact with skin, eyes or clothing. Stop or reduce discharge if safe to do so. Contain spill and collect using inert absorbent material. Do not touch spilled material or contaminated absorbent. Prevent from entering sewers or waterways. 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:

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 must be thoroughly trained in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing suitable for the application. Post "No Smoking" signs. Ground and bond equipment to prevent static charge accumulation. Use non-sparking tools. Avoid splash filling. Keep storage and work areas free of combustible or incompatible materials. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Avoid contact with skin and eyes and inhalation of vapours. Avoid generating vapours or mists. Empty containers may contain hazardous residues; treat with extreme caution.

Storage Requirements:

Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight and away from all sources of heat and ignition, and incompatible materials. Keep tightly closed when not in use. Protect from damage. Inspect regularly for signs of leaking or damage. Keep storage area clear of combustible 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 warm gently running water for at least twenty (20) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Get medical attention immediately.

Skin:

Remove contaminated clothing (including rings, watches, belts and shoes). Immediately flush exposed area with large amounts of warm running water for five to ten (5-10) minutes. If irritation persists, get medical attention.

Inhalation:

Remove casualty to fresh air (rescuers must use caution to avoid exposure to contaminating fumes). Give oxygen and get medical attention for breathing difficulty.

Ingestion:

DO NOT INDUCE VOMITING. Danger of aspiration if vomiting occurs. If the casualty is alert and not convulsing, have them drink 2 to 4 glasses of water to dilute the material. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more

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water.

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. 1, 1992

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued:

November 1, 1988

Revision:

March 2012

MSDS:

8500-1, 8501-2, 8501-7

Proposed WHMIS Designation:

B2; D2B (eye irritation)

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