

MATERIAL SAFETY DATA SHEET

2-METHYL-2-PROPANOL

PRODUCT CODE NUMBER(S): 7100-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: 2-Methyl-2-propanol; tert-butyl alcohol; tert-Butanol; 1,1-Dimethylethanol; Trimethyl carbinol

Chemical Family: Tertiary aliphatic alcohol

Chemical Formula: (CH₃)₃COH

Product Use: Laboratory solvent

Manufacturer's Name and Address:

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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
2-Methyl propan-2-ol	99	300 mg/m ³	75-65-0

PHYSICAL DATA

Physical State: Liquid

Odour and Appearance: Colourless liquid with a camphor like odour. Solidifies below 25°C to colourless crystals.

Odour Threshold (ppm): 219 mg/m³. Poor warning properties, odour threshold about the same as TLV.

Vapour Pressure (mm Hg): 31.0 mm Hg at 20°C

Vapour Density (Air = 1): 2.55

Evaporation Rate: Not available

Boiling Point (degrees C): 82.4°C

Freezing Point (degrees C): 25°C

pH: Not available, probably neutral

Specific Gravity: 0.786 @ 20°C

Coefficient of Water/Oil distribution: logP (oct)= 0.35

SHIPPING DESCRIPTION

UN: 1120

T.D.G. Class: 3

Pkg. Group: II

REACTIVITY DATA

Chemical Stability: Stable

Incompatibility with other substances: Strong oxidizing agents, acids, acid anhydrides, acid chlorides. Increased risk of fire and explosion with strong oxidizing agents such as nitrates and perchlorates. Contact with potassium-sodium alloy caused ignition. Decomposes with mineral acids to produce flammable isobutylene gas. Severe explosions with hydrogen peroxide, sulphuric acid. Not corrosive to metals.

Reactivity: Avoid exposure to heat, open flame, sparks, all ignition sources. Avoid generation of dust or mist.

Hazardous Decomposition Products: CO_x

FIRE AND EXPLOSION DATA

Flammability: Flammable liquid and vapour. Vapours form explosive mixtures with air at, or above, 11°C. Vapour is heavier than air and may travel to distant sources of ignition and flash back.

Extinguishing Media: Water fog; CO₂; 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): 11°C (CC)

Autoignition Temperature: 478°C

Upper Flammable Limit (% by volume): 8.0%

Lower Flammable Limit (% by volume): 2.4%

Hazardous Combustion Products: CO, CO₂, isobutylene

Sensitivity to Impact: None identified

Sensitivity to Static discharge: Liquid is unlikely to accumulate static charge. Vapours in the flammable range may be ignited by static discharge of sufficient energy.

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD₅₀: (oral, rat) 3,500 mg/kg

LC₅₀: Not available

Effects of Acute Exposure to Product:

Inhaled: Vapours are irritating to the eyes, nose, throat, and respiratory tract. Severe overexposures may cause central nervous system depression with headache, nausea, dizziness, incoordination and confusion, eventual coma and death. Exposure below 100 ppm are not likely to cause these effects.

In contact with skin: May cause mild irritation, defatting, drying and cracking of the skin. May be absorbed through skin, but not likely in harmful amounts, unless exposure is extreme. May cause allergic reaction.

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 damage may occur. Aspiration into the lungs may cause severe lung damage, respiratory and cardiac arrest and possible death.

Effects of Chronic Exposure to Product:

Repeated or prolonged skin exposure may lead to dermatitis, erythema and scaling.

CODE: 7100-1

Carcinogenicity: No human or animal information available. Not considered to be a carcinogen by NTP, IARC, or OSHA

Teratogenicity: Developmental effects demonstrated, but only at maternally toxic doses (RTECS No. EO 1925000).

Reproductive Effects: No human information available, Animal studies indicate unlikely to cause effects.

Mutagenicity: Negative results in bacterial and mammalian cell studies.

Synergistic Products: Alcohols may react synergistically with chlorinated hydrocarbons (carbon tetrachloride), aromatic hydrocarbons (xylenes), and dithiocarbamates (disulphiram).

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: Up to 1,600 ppm: NIOSH/MSHA approved continuous-flow supplied-air respirator, or full face-piece chemical cartridge respirator with organic vapour cartridge, or full face-piece supplied-air respirator. For higher or unknown concentrations, as in fire or spill conditions, use positive pressure, full facepiece self-contained breathing apparatus, or positive pressure, full facepiece supplied-air respirator, with an auxiliary positive pressure self-contained breathing apparatus.

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

Skin Protection: Butyl rubber, Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol), Responder™. Other impervious protective clothing (coveralls, boots) as required to prevent contact with liquid or vapour.

Other Personal Protective Equipment: Eyebath, 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 hazardous substances 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 spilled 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. Contaminated adsorbent may pose the same hazards as the spilled product; treat with caution. Flush area of spill thoroughly with running water.

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

Handling Procedures and Equipment: FLAMMABLE, TOXIC, IRRITANT. 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 heat and ignition sources, and all incompatible materials. Protect from damage and inspect regularly for signs of leaking. Post "No Smoking" signs. Keep containers tightly closed when not in use. Inspect regularly for leaks or damage. Storage facilities should be made of fire-resistant materials, and have raised sills or ramps, with trenching to a safe area.

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). Give oxygen and get medical attention for any breathing difficulty.

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

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

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: August 5, 1991

Revision: November 2007

MSDS: 7100-1

Proposed WHMIS Designation: B2; D2B (eye irritation)

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