

MATERIAL SAFETY DATA SHEET**2,2,4-TRIMETHYLPENTANE**

PRODUCT CODE NUMBER(S): 9400-1, 9400-2, 9400-3, 9401-2, 9401-7, 9402-2, 9400-30

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** 2,2,4-Trimethylpentane; Iso-octane; Isobutyltrimethylmethane**Chemical Family:** Saturated aliphatic hydrocarbon**Chemical Formula:** C₈H₁₈**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.
2,2,4-Trimethylpentane	>99	300 ppm	540-84-1

PHYSICAL DATA**Physical State:** Liquid**Odour and Appearance:** Clear, colourless liquid, with sweet, gasoline-like odour.**Odour Threshold (ppm):** Not available**Vapour Pressure (mm Hg):** 41 mm Hg at 21°C**Vapour Density (Air = 1):** 3.94**Evaporation Rate:** <1 (ether=1)**Boiling Point (°C):** 99°C**Freezing Point (°C):** -107°C**pH:** Not applicable**Specific Gravity:** 0.692**Coefficient of Water/Oil distribution:** Not available**SHIPPING DESCRIPTION****UN:** 1262**T.D.G. Class:** 3**Pkg. Group:** II**REACTIVITY DATA****Chemical Stability:** Stable under normal conditions of use and storage.**Incompatibility with other substances:** Increased risk of fire and explosion with strong oxidizing agents. Not corrosive to metals.**Reactivity:** Avoid heat, sparks, open flame, all ignition sources, and all incompatible materials. Avoid generation of mist.**Hazardous Decomposition Products:** Carbon oxides and various hydrocarbons formed when burned.**FIRE AND EXPLOSION DATA****Flammability:** Extremely flammable liquid and vapour. Forms explosive or flammable mixtures with air at, or above, -12°C. Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Liquid can float on water and spread fire or flash back. Can accumulate static charge.**Extinguishing Media:** CO₂, dry chemical, foam. Water may be ineffective for extinguishing, but as spray or fog may be used to cool containers and disperse vapours. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (NIOSH/OSHA approved self-contained breathing apparatus) and clothing (Bunker Gear) sufficient to prevent inhalation of mists or vapours, and contact with skin and eyes. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.**Flash Point (Method Used):** -12°C (CC)**Autoignition Temperature:** 418°C**Upper Flammable Limit (% by volume):** 6.0**Lower Flammable Limit (% by volume):** 1.1**Hazardous Combustion Products:** CO_x**Sensitivity to Impact:** None identified**Sensitivity to Static discharge:** Liquid can accumulate electrostatic charge by flow or agitation, due to its low electrical conductivity. Vapour in the flammable range can be ignited by a electrostatic discharge of sufficient energy.**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** (oral, rat) >5,000 mg/kg; (dermal, rabbit) >2,000 mg/kg**LC₅₀:** (inh, rat) >3000 ppm/4h**Effects of Acute Exposure to Product:****Inhaled:** Concentrated vapour is irritating to respiratory passages. Prolonged exposure can cause headache, nausea, dizziness, incoordination and unconsciousness. Overexposure to very high concentrations may cause inflammation, and edema of the larynx and bronchi, pulmonary edema, unconsciousness, and death.**In contact with skin:** Liquid may be mildly irritating. May be absorbed by skin causing symptoms as in "Inhaled", but a single exposure is unlikely to cause effects.**In contact with eyes:** Concentrated vapour or liquid is irritating, causing redness, pain.**Ingested:** Can cause headache, nausea and vomiting, dizziness, incoordination. Oral toxicity is relatively low, but aspiration into the lungs, which can occur during ingestion or vomiting, can cause severe lung damage, chemical pneumonitis, and even death.

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Effects of Chronic Exposure to Product:

Testing on animals caused liver and kidney damage. Prolonged or repeated skin exposure may cause defatting and dermatitis

Carcinogenicity: Insufficient information available. Not expected to be carcinogenic.

Teratogenicity: Insufficient information available. Probably not teratogenic.

Reproductive Effects: Insufficient information available. Not expected to cause reproductive effects.

Mutagenicity: Insufficient information available. Probably not mutagenic.

Synergistic Products: Enhanced toxic effects of CO, but also hastened recovery.

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded exhaust ventilation, separate from other ventilation systems.

Respiratory Protection: To 750 ppm: NIOSH/OSHA approved supplied-air respirator. To 1,000 ppm: supplied-air respirator operated in continuous-flow mode, or full face-piece self-contained breathing apparatus, or full face-piece supplied-air respirator. Higher or unknown concentrations, or 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 safety goggles and/or face shield.

Skin Protection: Viton™, nitrile rubber, Barrier (PE/PA/PE) gloves. Other protective clothing, sleeves, apron, coveralls, boots, sufficient to prevent contact.

Other Personal Protective Equipment: Safety shower and eye wash fountain readily available in work area.

Leak and Spill Procedure: Evacuate area, and provide maximum ventilation. 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 inhalation of mists or vapours and contact with skin and eyes. Do not touch spilled material. Stop or reduce discharge if safe to do so. Contain spill and collect using inert absorbent material. Prevent from entering sewers or waterways. Collect contaminated adsorbent in labelled containers and hold for disposal. Wash site of spill thoroughly with detergent and water.

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

Handling Procedures and Equipment: VERY FLAMMABLE, TOXIC. Personnel working with this substance must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing suitable for the application. Keep away from heat, sparks, flame, and all sources of ignition. Post "No Smoking" signs. Ground and bond drums, transfer vessels, hoses and piping, during liquid transfer. Ground clips must contact bare metal. Use non-sparking tools. Use inert gas in containers or storage vessels to reduce fire/explosion hazard. Keep work area free of other materials that can burn. Keep aisles and exits clear of obstruction. 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. Keep containers closed when not in use. Empty containers may contain hazardous residues; treat with caution. Do not return contaminated material to

the original container. Have absorbents readily available for leaks or spills. Have appropriate fire extinguishers available.

Storage Requirements: Store in suitable, labelled containers, a cool, dry, well-ventilated area, out of direct sunlight, and away from heat, sparks and flame, or any combustible or incompatible materials (e.g. oxidizing agents). Protect from damage and inspect frequently for signs of damage and/or leaking. Keep tightly closed. Storage area should have raised sills to contain leaks and trenches to conduct them to a safe area.

FIRST AID MEASURES

Specific Measures:

Eyes: Immediately flush eyes with gently running water, holding eyelids open while flushing, for five to ten (5-10) minutes, or until no trace of chemical remains. Take care not to flush contaminated water into unaffected eye. Get medical attention.

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, obtain medical attention.

Inhalation: IMMEDIATELY remove casualty from contaminated area to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Remove any sources of ignition. Give oxygen and get medical attention for any breathing difficulty. If breathing has stopped give artificial respiration. If breathing and pulse are absent give CPR. Immediately obtain medical attention. Stay with casualty until medical assistance is reached.

Ingestion: DO NOT INDUCE VOMITING. Danger of aspiration with emesis. If casualty is alert and NOT convulsing, rinse mouth with water and give 1 to 2 cups 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. Rinse mouth and give more water to drink.

REFERENCES USED

CCINFO disc: Cheminfo

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

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: March 1, 1989

Revision: November 2011

MSDS: 9400-1, 9400-2, 9400-3, 9401-2, 9401-7, 9402-2, 9400-30

Proposed WHMIS Designation: B2; D2B

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