

MATERIAL SAFETY DATA SHEET**1,2,4-TRICHLOROBENZENE**

PRODUCT CODE NUMBER(S): 9280-1

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** 1,2,4-Trichlorobenzene**Chemical Family:** Chlorinated hydrocarbon, halobenzene**Chemical Formula:** C₆H₃Cl₃**Product Use:** Laboratory solvent**Manufacturer's Name and Address:**

Caledon Laboratories Ltd.

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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.
1,2,4-Trichlorobenzene	~99	5 ppm	120-82-1

PHYSICAL DATA**Physical State:** Liquid**Odour and Appearance:** Clear, colourless liquid, with a characteristic, aromatic odour. Crystalline solid <17°C.**Odour Threshold (ppm):** Not available**Vapour Pressure (mm Hg):** 1 mm Hg @ 20°C**Vapour Density (Air = 1):** 6.3**Evaporation Rate (Bu ac=1):** Not available**Boiling Point (°C):** 213°C**Freezing Point (°C):** 15 to 17°C**pH:** Not applicable**Specific Gravity:** 1.4542 @ 20°C**Coefficient of Water/Oil distribution:** LogP(oct)=4.02**SHIPPING DESCRIPTION****UN:** 2321**T.D.G. Class:** 6.1**Pkg. Group:** III**REACTIVITY DATA****Chemical Stability:** Stable**Incompatibility with other substances:** Reacts violently with strong oxidizers; reacts with strong bases, amines, alkali metals, pure oxygen, Lewis and mineral acids. Exposure to light may cause reaction leading to formation of PCB's.**Reactivity:** Avoid excessive heat, exposure to light, all ignition sources, incompatible materials, generation of mist.**Hazardous Decomposition Products:** At high temperatures, gives off HCl vapour and small quantities of other toxic vapours such as phosgene and chlorine.**FIRE AND EXPLOSION DATA****Flammability:** Combustible if strongly heated.**Extinguishing Media:** Water fog or spray, CO₂, foam, dry chemical. Water, as spray or fog, can also be used to cool containers, knock down mist or vapours, flush chemical away from fire. Fight fire from upwind, from a safe distance. Fire fighters must wear protective equipment (positive-pressure self-contained breathing apparatus) and clothing (chemical splash suit) sufficient to prevent inhalation of mist or fumes, and contact with skin and eyes.**Flash Point (Method Used):** 105°C (CC)**Autoignition Temperature:** 571°C**Upper Flammable Limit (% by volume):** 6.6**Lower Flammable Limit (% by volume):** 2.5**Hazardous Combustion Products:** Hydrogen chloride gas, phosgene gas, toxic and irritating vapours**Sensitivity to Impact:** None**Sensitivity to Static discharge:** None identified**TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** (oral, rat) 756 mg/kg; (dermal, rat) 6.139 mg/kg**LC₅₀:** (rat) 24,445 ppm/4h, 57,000 ppm/15 min**Effects of Acute Exposure to Product:****Inhaled:** Irritating to upper respiratory tract, causing sore throat, coughing, shortness of breath. More severe exposures can cause central nervous system depression, with dizziness, nausea, vomiting, unconsciousness. Can cause liver damage, cardiac arrhythmia. Extreme exposures could cause pulmonary edema, and even death.**In contact with skin:** No human information available.

Based on animal information, probably irritating to skin, causing redness, itching, pain. Readily absorbed through intact skin, causing symptoms as in "Inhaled".

In contact with eyes: Vapour and liquid Cause severe irritation, with pain, redness, tearing, blurring of vision.**Ingested:** Based on animal information, probably irritating and moderately toxic. Can cause gastrointestinal irritation with nausea, vomiting, diarrhea, and systemic effects as in "Inhaled".**Effects of Chronic Exposure to Product:**

Prolonged or repeated exposure can cause damage to liver, spleen, kidneys, nervous system. Prolonged or repeated skin exposure may cause dermatitis.

Persons with pre-existing eye or skin conditions, or impaired liver, kidney, or pulmonary function may be more susceptible to the effects of this substance.

Carcinogenicity: Tumorigenic in animal testing**Teratogenicity:** Teratogenic in animal testing**Reproductive Effects:** Effects in animal testing

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Mutagenicity: *Some effects in animal testing***Synergistic Products:** *None known***PREVENTIVE MEASURES****Engineering Controls:** *Local exhaust ventilation required.***Respiratory Protection:** *NIOSH approved chemical cartridge respirator with organic vapour cartridges, to the maximum use specified by the respirator supplier. 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, face shield.***Skin Protection:** *Tychem BR/LV, or Tychem TK gloves; Viton is adequate for short-term use (less than 4 hrs). Other protective impervious clothing, sleeves, coveralls, boots, sufficient to prevent contact.***Other Personal Protective Equipment:** *An eyewash and safety shower should be nearby and ready for use.***Leak and Spill Procedure:** *Restrict access to area of spill. Ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the hazards of the product 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. Dike spills. Prevent from entering sewers or waterways. Collect on inert absorbent material and transfer to suitable, labelled, covered containers for recovery or disposal. Contaminated material 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:** **TOXIC, SKIN/EYE IRRITANT.** *Workers handling this material must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Keep away from heat and ignition sources, and exposure to light. Avoid generating mists or vapours. 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. Follow good housekeeping procedures; keep work area free of extraneous, combustible, and incompatible substances. Stand upwind of operations. Do not return contaminated material to the original containers.***Storage Requirements:** *Solvents should not be stored in basement premises (risk of accumulation of heavy solvent vapour). Store in suitable, labelled containers, in a cool, dry, well-ventilated place, out of direct sunlight, and away from ignition sources and incompatible materials. Keep air out of container. Keep container tightly closed when not in use and when empty. Protect from exposure to light. Protect from damage, and inspect frequently for signs of leaking. Storage facilities should be made of fire-resistant materials, and have raised sills or ramps, with trenching to a safe area.**care not to flush contaminated water into unaffected eye. Wear protective gloves to avoid contact during first aid procedures. Get medical attention immediately.***Skin:** *Under running water, remove contaminated clothing (including shoes, watches, belts, and rings). Immediately flush the exposed area with large amounts of running water for five to ten (5-10) minutes, or until no trace of chemical remains. Wear protective gloves and other clothing to avoid contact. 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 for 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 vomiting. If the casualty is alert and not convulsing, have him drink 2 to 3 glasses of water to dilute the material. Get medical attention immediately. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water.***REFERENCES USED**

CCINFO: Cheminfo

Budavari: *The Merck Index*, 12th ed., 1997Royal Society of Chemistry: *Chemical Safety Data Sheets*, Vol. 1, 1992Sax, Lewis: *Hawley's Condensed Chemical Dictionary*, 11th ed., 1987

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION**Date Issued:** *March 18, 1999***Revision:** *March 2011***MSDS:** 9280-1**Proposed WHMIS Designation:** *D1B; D2B*

*Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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FIRST AID MEASURES**Specific Measures:****Eyes:** *Flush eyes with warm running water for at least fifteen (15) minutes, holding eyelids open while flushing. Take*