

MATERIAL SAFETY DATA SHEET

METHYL ACETATE

PRODUCT CODE NUMBER(S): 6900-1, 6901-7

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Methyl acetate; Acetic acid methyl ester, Methyl ethanoate*
Chemical Family: *Saturated aliphatic carboxylic acid ester*
Chemical Formula: CH_3COOCH_3
Product Use: *Laboratory reagent*
Manufacturer's Name and Address:
*Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9*
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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
<i>Methyl acetate</i>	~99	200 ppm	79-20-9

PHYSICAL DATA

Physical State: *Liquid*
Odour and Appearance: *Clear colourless to pale yellow liquid, pleasant, fruity odour.*
Odour Threshold (ppm): *180 ppm (detection), 300 ppm (recognition). Poor warning qualities, threshold about the same as TLV.*
Vapour Pressure (mm Hg): *173 mm Hg @ 20°C*
Vapour Density (Air = 1): *2.55*
Evaporation Rate (BuAc = 1): *11.8*
Boiling Point (degrees C): *56.9°C*
Freezing Point (degrees C): *-98°C*
pH: *Can form acetic acid in presence of water, producing some acidity*
Specific Gravity: *0.933 @ 20°C*
Coefficient of Water/Oil distribution: *logP(oct)=0.18*

SHIPPING DESCRIPTION

UN: 1231
T.D.G. Class: 3
Pkg. Group: II

REACTIVITY DATA

Chemical Stability: *Stable in anhydrous state. May hydrolyze slowly to methanol and acetic acid in presence of water.*
Incompatibility with other substances: *Increased risk of fire and explosion with oxidizers. May react vigorously with strong bases, strong acids. Contact of potassium tert-butoxide with methyl acetate vapour may cause ignition. Probably not corrosive to metal. Can attack some plastics.*
Reactivity: *Avoid heat, sparks, hot surfaces, all ignition sources, all incompatible materials, generation of mist.*
Hazardous Decomposition Products: *Methanol, acetic acid.*

FIRE AND EXPLOSION DATA

Flammability: *Extremely flammable liquid and vapour. Will readily ignite at room temperature. Vapour is heavier than air and may travel considerable distance to source of ignition and flash back. Can accumulate in confined spaces, resulting in a toxicity and flammability hazard. Concentrated solutions in water may be flammable. Closed containers may rupture violently when heated.*
Extinguishing Media: *CO₂, dry chemical powder, alcohol or polymer 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 (full face-piece, positive-pressure self-contained breathing apparatus) and clothing (full Bunker gear) sufficient to prevent inhalation of fumes or vapours and contact with skin and eyes. Containers may explode in heat of fire; withdraw immediately in case of rising sound from vent or discoloration of tank.*
Flash Point (Method Used): *-10°C (CC)*
Autoignition Temperature: *454°C*
Upper Flammable Limit (% by volume): *16%*
Lower Flammable Limit (% by volume): *3.1%*
Hazardous Combustion Products: *Acrid fumes, CO_x*
Sensitivity to Impact: *None identified*
Sensitivity to Static discharge: *Liquid will probably not accumulate static charge (high electrical conductivity); vapours in the flammable range may be ignited by static discharge.*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD₅₀: *(oral, rat) >5,000 mg/kg; (oral, rabbit) 3,700 mg/kg; (dermal, rabbit) >5,000 mg/kg*
LC₅₀: *(rat) 16,000-32,000 ppm/4h*
LC_{Lo}: *(mouse) 11,300 ppm/4h*

Effects of Acute Exposure to Product:

Inhaled: *Toxic. Exposure to high levels, (5,000-10,000 ppm) is irritating to upper respiratory tract, causing coughing, shortness of breath, wheezing, chest pain, and CNS effects, with nausea, headache, dizziness, unconsciousness. May cause optic nerve damage and possible blindness.*
In contact with skin: *Mildly irritating. Can be absorbed by skin, but not expected to be toxic by absorption.*
In contact with eyes: *Animal testing indicates that liquid or vapour can cause moderate to severe irritation.*
Ingested: *Toxic and irritating to gastrointestinal tract. Local application of one drop to tongue caused burning, reddening and swelling. Ingestion of small amounts may cause shortness of breath, headache, drowsiness, dizziness. Ingestion of large amounts may cause acidosis, vision impairment, even blindness, convulsions, stupor, and death. Methyl acetate breaks down in the body to form methanol and acetic acid, which causes the effects.*

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Effects of Chronic Exposure to Product:

Prolonged or repeated skin exposure can cause dermatitis. No sensitization has been reported in testing with volunteers. Prolonged or repeated inhalation can cause CNS effects as in "Inhaled".

Carcinogenicity: No human or animal information available. Not expected to be carcinogenic; metabolites are not carcinogenic.

Teratogenicity: No human or animal information available.

Reproductive Effects: No human or animal information available.

Mutagenicity: Negative in Ames test. Vapour mutagenic to yeast cells (RTECS No. AI9100000).

Synergistic Products: None known.

PREVENTIVE MEASURES

Engineering Controls: Local exhaust ventilation required.

Respiratory Protection: Up to 2,000 ppm: NIOSH/OSHA approved organic vapour cartridge respirator or supplied-air respirator. Up to 3,100 ppm: continuous-flow supplied-air respirator, or full face-piece chemical cartridge respirator, or powered air-purifying respirator with organic vapour cartridge. Higher or unknown concentrations, as in fire or spill conditions: positive pressure, full facepiece self-contained breathing apparatus, or positive pressure, full face-piece air-supplied respirator with an auxiliary positive pressure self-contained breathing apparatus.

Eye Protection: Chemical goggles and/or face shield.

Skin Protection: Butyl rubber or 4H™ (polyethylene/ethylene vinyl alcohol) gloves. Other impervious protective clothing, apron, sleeves, coveralls, boots, as required to prevent contact.

Other Personal Protective Equipment: Safety shower and eye bath located close to chemical exposure area.

Leak and Spill Procedure: Eliminate all sources of ignition. Evacuate area. Cleanup personnel must be thoroughly trained in the hazards of this chemical and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists and contact with skin and eyes. Stop or reduce discharge if safe to do so. Contain spill with inert absorbent (sand, earth). Do not touch spilled material. Prevent from entering sewers or waterways. Recover product and collect contaminated soil for disposal. For small spills, contain by applying inert absorbent. Collect waste for disposal. Contaminated absorbent may pose the same hazards as the spilled product; treat with caution. Flush area of spill with running water.

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

Handling Procedures and Equipment: EXTREMELY FLAMMABLE. TOXIC, EYE IRRITANT. Personnel working with this chemical must be thoroughly trained regarding its hazards, and its safe use, and must wear appropriate protective equipment and clothing. Ground and bond all equipment to prevent static charge accumulation. Use non-sparking tools. Post "No Smoking" signs. Avoid splash filling. Do not use pressure to transfer liquid. Keep containers closed when not in use. Avoid generating vapours or mists. Avoid all contact and inhalation. Use the smallest possible amount for the purpose, in designated areas with adequate ventilation. Keep storage and work areas free of combustible or incompatible materials. Keep containers closed when not in use and when empty. 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 ignition and incompatible materials. Post "NO SMOKING" signs. 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. 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: Immediately remove contaminated clothing (including rings, watches, belts and shoes). Flush exposed area with large amounts of warm running water and non-abrasive soap for at least five to ten (5 to 10) minutes. If irritation persists, get medical attention. Decontaminate clothing before reuse, or discard.

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. If the casualty is alert and not convulsing, give 2 to 4 glasses of water to drink to dilute the material. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water. If breathing has stopped give artificial respiration. If breathing and pulse are absent give CPR. Get medical attention immediately.

REFERENCES USED

- CCINFO disc
- 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: July 22, 1991

Revision: December 2009

MSDS: 6900-1, 6901-7

Proposed WHMIS Designation: B2; D2B

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