



## Material Safety Data Sheet

LA1183  
METHANOL

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Id:** LA1183  
**Product Name:** METHANOL  
**Synonyms:** Methyl hydrate, Wood spirit, Methyl hydroxide.  
**Chemical Family:** Alcohol  
**Application:** Solvent, fuel, feedstock

**Distributed By:**  
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Richmond, BC  
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**Prepared By:** The Environment, Health and Safety Department of Univar Canada Ltd.  
**Preparation date of MSDS:** 20/Jan/2016  
**Telephone number of preparer:** 1-866-686-4827

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### 2. HAZARDS IDENTIFICATION

**Potential Acute Health Effects:**

**Eye Contact:** Causes serious eye irritation.

**Skin Contact:** Toxic by skin contact. Repeated exposure to this material can result in absorption through skin causing significant health hazard. Prolonged or repeated exposure may cause skin irritation. May be absorbed through the skin in toxic or lethal amounts.

**Inhalation:** Toxic if inhaled. Symptoms may include dizziness, headache, nausea and loss of coordination. CNS depression. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.

**Ingestion:** Toxic if swallowed. Ingestion of as little as 10 ml of methanol can cause blindness and 30 ml (1 ounce) can cause death if victim is not treated. Ingestion causes mild central nervous system (CNS) depression with nausea, headache, vomiting, dizziness, incoordination and an appearance of drunkenness. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage (W/W)	LD50s and LC50s Route & Species:
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Methanol 67-56-1	100	Dermal LD50 (Rabbit) 15800 mg/kg Oral LD50 (Rat) 5628 mg/kg Inhalation LC50 (Rat) >32,000 ppm / 8hrs Inhalation LC50 (Rat) 64000 ppm (4-hour exposure) Oral LD50 (Mouse) 7300 mg/kg
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**Note:** No additional remark.

#### 4. FIRST AID MEASURES

**Eye Contact:** Remove contact lenses, if worn. Flush immediately with gentle running water for a minimum of 15 minutes, ensuring all surfaces and crevices are flushed by lifting lower and upper lids. Obtain medical attention.

**Skin Contact:** Remove contaminated clothing and shoes. In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. If irritation persists get medical attention. Wash clothing before reuse. Thoroughly clean contaminated shoes. Prolonged contact with methanol may defat skin tissue, resulting in drying and cracking.

**Inhalation:** Remove to fresh air, restore or assist breathing if necessary, obtain medical attention immediately.

**Ingestion:** If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical help immediately. Onset of symptoms may be delayed for 18 to 24 hours after ingestion. Swallowing methanol is life threatening.

**Notes to Physician:** Treat symptomatically. The severity of outcome following methanol ingestion may be more related to the time between ingestion and treatment, rather than the amount ingested. Therefore, there is a need for rapid treatment of any ingestion exposure. Antidote is fomepizole which enhances elimination of metabolic formic acid. This must be administered by a trained medical professional only. For specialist advice physicians should contact the Poison Control Centre.

#### 5. FIRE FIGHTING MEASURES

**Flash Point:** 11 °C / 52 °F

**Flash Point Method:** Tag Closed Cup

**Autoignition Temperature:** 385°C / 725°F

**Flammable Limits in Air (%):** Lower: 6% Upper: 36.5%

**Extinguishing Media:** Small fires: Dry chemical, CO<sub>2</sub>, water spray Large fires: Water spray (see note in Unsuitable Extinguishing Media), AFFF(R) (Aqueous Film Forming Foam (alcohol resistant)) type with a 3% foam proportioning system.

Unsuitable Extinguishing Media: General purpose synthetic foams or protein foams may work, but much less effectively. Water may be effective for cooling, but may not be effective for extinguishing a fire because it may not cool methanol below its flash point.

**Special Exposure Hazards:** Flammable Liquid. Isolate and restrict area access. Stay upwind. Methanol burns with a clean clear flame that is almost invisible in daylight. Concentrations of greater than 20% methanol in water can be ignited. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Contain fire control water for later disposal. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. Closed containers may rupture violently or explode and suddenly release large amounts of product when exposed to fire or excessive heat for a sufficient period of time.

**Hazardous Decomposition/Combustion Materials (under fire conditions):** Carbon monoxide. Carbon dioxide. Formaldehyde.

**Special Protective Equipment:** Fire fighters must wear full face, positive pressure, self-contained breathing apparatus and appropriate protective clothing. Note that methanol fires may require proximity suits. Do not walk through spilled product. Thoroughly decontaminate bunker gear and other fire-fighting equipment before re-use.

**NFPA RATINGS FOR THIS PRODUCT ARE:** HEALTH 1, FLAMMABILITY 3, INSTABILITY 0

**HMS RATINGS FOR THIS PRODUCT ARE:** HEALTH 1, FLAMMABILITY 3, REACTIVITY 0

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures:** Full-face, positive pressure self-contained breathing apparatus or airline and protective clothing must be worn.

**Environmental Precautionary Measures:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Consult local authorities. Biodegrades easily in water. Methanol in fresh or salt water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.

## 6. ACCIDENTAL RELEASE MEASURES

**Procedure for Clean Up:** Flammable liquid. Eliminate all ignition sources. Isolate hazard area and restrict access. Stop leak only if safe to do so. Do not walk through spilled product as it may be on fire and not visible. Release can cause an immediate fire/explosion hazard. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapor and fire hazard. Maximize recovery for recycling or reuse. Restrict access to unprotected personnel. Ensure clean-up is conducted by trained personnel only. Ensure disposal is in compliance with all applicable government requirements. Small spills: soak up with absorbent material and scoop into containers. Large spills : prevent contamination of waterways. Dike and pump into suitable containers. Clean up residual with absorbent material, place in appropriate container and flush with water.

## 7. HANDLING AND STORAGE

**Handling:** For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Avoid inhalation of chemical. DO NOT handle or store near an open flame, heat, or other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. DO NOT pressurize, cut, heat, or weld containers. Empty containers may contain hazardous product residues. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.

**Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Place away from incompatible materials. Tanks must be grounded and vented and should have vapor emission controls. Tanks must be diked. Packaging materials: SUITABLE MATERIAL: Steel. Stainless steel. Iron. Glass. MATERIAL TO AVOID: Lead. Aluminum. zinc. Polyethylene. PVC.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. Use explosion proof equipment.

**Respiratory Protection:** NIOSH/OSHA recommendations for methanol concentrations in air:

Up to 2000 ppm: supplied air respirator

Up to 5000 ppm: supplied air respirator operated in a continuous-flow mode.

Up to 6000 ppm: supplied air respirator with a tight-fitting facepiece operated in a continuous- flow mode; or Full-facepiece self-contained breathing apparatus or Full-facepiece supplied air respirator.

Cartridge type respirators are NOT recommended.

Emergency or Planned entry into unknown concentrations or IDLH (immediately dangerous to life or health) conditions: Respirator selection must be done by a qualified person and be based upon a risk assessment of the work activities and exposure levels. Respirators must be fit tested and users must be clean shaven where the respirator seals to the face. Exposure must be kept at or below the applicable exposure limits and the maximum use concentration of the respirator must not be exceeded.

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.

### Gloves:

Appropriate chemical resistant gloves should be worn. Butyl rubber gloves. Nitrile gloves. Neoprene gloves.

**Skin Protection:** Wear chemical resistant pants and jackets, preferably butyl or nitrile rubber.

**Eyes:** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Personal Protection Data:** Ensure that eyewash stations and safety showers are proximal to the work-station location. Chemical resistant footwear.

Ingredients	Exposure Limit - ACGIH	Exposure Limit - OSHA	Immediately Dangerous to Life or Health - IDLH
Methanol	200 ppm TWA (Skin) 250 ppm STEL (Skin)	200 ppm TWA (Skin) 250 ppm STEL (Skin) 260 mg/m <sup>3</sup> TWA (Skin) 325 mg/m <sup>3</sup> STEL (Skin)	6000 ppm

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Liquid

**Color:** Clear/ Colorless

**Odor:** Alcohol

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**pH** Not applicable.

**Specific Gravity:** 0.791 @ 20°C

**Boiling Point:** 64.7°C /148.5°F

**Freezing/Melting Point:** -97.8°C / -144°F

**Vapor Pressure:** 12.8 kPa @ 20°C

**Vapor Density:** 1.105 @ 15°C

**% Volatile by Volume:** 100%

**Evaporation Rate:** 4.1 (n-butyl acetate = 1)

**Solubility:** Completely soluble.

**VOCs:** Not Available.

**Viscosity:** Not Available.

**Molecular Weight:** 32.04 g/mol

**Other:** Odor threshold:

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable.

**Hazardous Polymerization:** Will not occur.

**Conditions to Avoid:** Incompatible materials. Avoid any source of ignition. Hygroscopic (absorbs moisture from the air).

**Materials to Avoid:** Strong oxidizers. Strong mineral acids. Organic acids. Strong bases. Contact with these materials may cause a violent or explosive reaction. May be corrosive to lead, aluminum, magnesium, and platinum. May react with metallic aluminum or magnesium and generate hydrogen gas. May attack some forms of plastic, rubber, and coatings.

**Hazardous Decomposition Products:** Carbon dioxide. Carbon monoxide. Formaldehyde.

**Additional Information:**

May form flammable/explosive vapor-air mixture.

Methanol is not compatible with gasket and O-rings materials made of Buna-N and Nitrile.

## 11. TOXICOLOGICAL INFORMATION

### Principle Routes of Exposure

**Ingestion:** Toxic if swallowed. Ingestion of as little as 10 ml of methanol can cause blindness and 30 ml (1 ounce) can cause death if victim is not treated. Ingestion causes mild central nervous system (CNS) depression with nausea, headache, vomiting, dizziness, incoordination and an appearance of drunkenness. Metabolic acidosis and severe visual effects can occur following an 8-24 hour latent period. Coma and death, usually due to respiratory failure, may occur if medical treatment is not received. Visual effects may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness.

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**Eye Contact:** Causes serious eye irritation.

**Additional Information:** Repeated exposure by inhalation or absorption of methanol may cause systemic poisoning, brain disorders, impaired vision and blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin contact may cause dermal irritation, dryness and cracking. Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity. Methanol is toxic by inhalation and ingestion. Inhalation of vapors may cause cyanosis, CNS effects, lethargy, loss of consciousness and death. The effects from inhalation may be delayed. Ingestion may cause malaise, CNS effects, discomfort, and death if not treated promptly. Ingestion of methanol has resulted in adverse effects (necrosis and hemorrhaging) in the brain. Medical conditions aggravated by exposure include: skin disorders and allergies, liver disorders and eye disease. Long term exposure to methanol has been associated with headaches, giddiness, conjunctivitis, insomnia and impaired vision. Dermal absorption of significant amounts of methanol resulted in death in several animal species. Toxic effects in animals exposed to methanol by inhalation include eye irritation, blindness and nasal discharge. Toxic effects observed in animals exposed to methanol by ingestion include CNS effects, gastrointestinal effects, anesthetic effects, damage to the optic nerve and acidosis.

**Synergistic Products:** In animals, high concentrations of methanol can increase the toxicity of other chemicals, particularly liver toxins like carbon tetrachloride. Ethanol significantly reduces the toxicity of methanol because it competes for the same metabolic enzymes, and has been used to treat methanol poisoning.

**Potential for Accumulation:** Methanol is readily absorbed into the body following inhalation and ingestion. Skin absorption may occur if the skin is broken or exposure is prolonged. Once absorbed, methanol is rapidly distributed to body tissues. A small amount is excreted unchanged in exhaled air and the urine. The rest is first metabolized to formaldehyde, which is then metabolized to formic acid and/or formate. The formic acid and formate are eventually converted to carbon dioxide and water. In humans, methanol clears from the body, after inhalation or oral exposure, with a half-life of 1 day or more for high doses (greater than 1000 mg/kg) or about 1.5-3 hours for low doses (less than 100 mg/kg or 76.5-230 ppm (100-300 mg/m<sup>3</sup>)).

**Acute Test of Product:**

**Acute Oral LD50:** >5,000 (Rat)

**Acute Dermal LD50:** 15800 mg/kg (Rabbit)

**Acute Inhalation LC50:** 64, 000 ppm/4h (Rat)

**Carcinogenicity:**

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Methanol	Not listed.	Not listed.

**Carcinogenicity Comment:** No additional information available.

**Reproductive Toxicity/ Teratogenicity/ Embryotoxicity/ Mutagenicity:** Methanol is reported to cause birth defects in rats exposed to 20 000 ppm. In experimental animals, methanol is fetotoxic, teratogenic and has produced significant behavioral abnormalities in offspring at dose levels not producing maternal toxic effects. Behavioral abnormalities were observed in the offspring of rats given drinking water containing 2% methanol. Methanol has produced mutagenic effects (somatic cells) in experimental animals.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Methanol	LC50 (Oncorhynchus mykiss) 13200 mg/L LC50 (Pimephales promelas) 28100 mg/L (96 hrs) LC50 (Lepomis macrochirus) 15400 mg/L (96 hrs)	EC50 (Daphnia Magna) :24500 mg/L (48hrs)	EC50 (Selenastrum capricornutum): 7.1 mg/L (48hrs)

### Other Information:

Methanol in fresh or salty water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 0.1 % while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water. Rapidly degradable.

## 13. DISPOSAL CONSIDERATIONS

**Disposal of Waste Method:** Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

**Contaminated Packaging:** Waste materials must be disposed of in accordance with your municipal, state, provincial and federal regulations.

## 14. TRANSPORT INFORMATION

### DOT (U.S.):

**DOT Shipping Name:** METHANOL

**DOT Hazardous Class** 3 (6.1)

**DOT UN Number:** UN1230

**DOT Packing Group:** II

**DOT Reportable Quantity (lbs):** 5000 / 2270 kg

**Note:** No additional remark.

**Marine Pollutant:** No.

### TDG (Canada):

**TDG Shipping Name:** METHANOL

**Hazard Class:** 3 (6.1)

**UN Number:** UN1230

**Packing Group:** II

**Note:** No additional remark.

**Marine Pollutant:** No.

## 15. REGULATORY INFORMATION

**U.S. TSCA Inventory Status:** All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

**Canadian DSL Inventory Status:** All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

### U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Methanol	Not Listed.	Listed	Listed

**California Proposition 65:** Listed.

**MA Right to Know List:** Listed.

**New Jersey Right-to-Know List:** Listed.

**Pennsylvania Right to Know List:** Listed.

**Additional Notes:** Not Available.

### **WHMIS Hazardous Class:**

B2 FLAMMABLE LIQUIDS

D1B TOXIC MATERIALS

D2A VERY TOXIC MATERIALS

D2B TOXIC MATERIALS



## 16. OTHER INFORMATION

**Additional Information:**

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**Disclaimer:**

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