

SAFETY DATA SHEET

This SAFETY DATA SHEET complies with the Canadian Controlled Product Regulations and the United States Occupational Safety and Health Administration (OSHA) hazard communication standard.

1. Product and Supplier Identification

Product:	Methanol
Synonyms:	Methyl Alcohol, Methyl Hydrate, Wood Spirit, Methyl Hydroxide
Formula:	CH ₃ OH
Chemical Family:	Methanol

Company Identification: OCI Methanol Marketing
9 Greenway Plaza
Houston, Texas 77627

Non-Emergency Telephone: (409) 723-1900

Emergency Telephone: 1-800-424-9300
CHEMTREC (Canada & US)



Note: CHEMTREC number to be used only in the event of chemical emergencies involving a spill, leak fire, exposure, or accident involving chemicals.


2. Hazards Identification

GHS Classifications

Health	Physical
Acute Toxicity, Dermal, Category 3 Acute Toxicity, Inhalation, Category 3 Acute Toxicity, Oral, Category 3 Specific Target Organ Toxicity – Single Exposure, Category 1	Flammable Liquids, Category 2

GHS Labels

	
Flammable Liquids	Skull and Crossbones

DANGER	DANGER
H225: Highly flammable liquid and vapor.	H370: Toxic if swallowed. H311: Toxic in contact with skin. H331: Toxic if inhaled.
 Health Hazard	
WARNING	
Causes damage to organs.	
<p>PRECAUTIONARY STATEMENT(S)</p> <p>Prevention:</p> <p>P260+P261: Avoid breathing dust/fume/gas/mist/vapors/spray. P264: Wash thoroughly after handling. P270: Do not eat, drink or smoke when using this product. P280: Wear protective gloves/protective clothing/eye protection/face protection. P271: Use only outdoors or in well-ventilated area.</p> <p>Response:</p> <p>P302+P352: IF ON SKIN: Wash with plenty of soap and water. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P301+P307+P311: IF EXPOSED or SWALLOWED: Immediately call a Poison Control or doctor/physician. P330: Rinse mouth. P361: Remove/take off immediately all contaminated clothing. P363: Wash contaminated clothing before reuse.</p> <p>Storage:</p> <p>P405: Store locked up. P403+P233: Store in a well-ventilated place. Keep container tightly closed.</p> <p>Disposal:</p> <p>P501: Dispose of contents/container in accordance with local/regional/national/international regulations.</p>	

Routes of Exposure: Skin Contact (Moderate); Eye Contact: (Moderate); Injection (Major); Inhalation (Major)



Effects of Short-Term (Acute) Exposure:

Eye Contact: Methanol is a mild to moderate eye irritant. High Vapor concentration or liquid contact with eyes causes irritation, tearing, and burning.

Skin Contact: Methanol is moderately irritating to the skin. Methanol can be absorbed through the skin and harmful effects have been reported by this route of entry. Effects are similar to those described in "inhalation."

Inhalation: Inhalation of high airborne concentrations can also irritate mucous membranes, cause headaches, sleepiness, nausea, confusion, loss of consciousness, digestive and visual disturbances and even death.

NOTE: Odor threshold of methanol is several times higher than the TLV-TWA. Depending on severity of poisoning and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects. Concentrations in air exceeding 100 ppm may cause irritation of the mucous membranes.

Ingestion: Swallowing even small amounts of methanol could potentially cause blindness or death. Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting, and visual disturbances ranging from blurred vision to light sensitivity.

Effects of Long-Term (Chronic) Exposure: Repeated exposure by inhalation or absorption 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.

Medical Conditions Aggravated By Exposure: Emphysema or bronchitis.

3. Hazards Identification

Chemical Name	Vol. %	CAS	EINECS	Classification
Methanol	99 - 100	67-56-1	200-659-6	R11, R20/21/22

*Exposure limits may vary from time to time and from one jurisdiction to another. Check with local regulatory agency for the exposure limits in your area.

4. First Aid Measures

Eye Contact: Remove contact lenses if worn. In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Obtain medical attention.

Skin Contact: In case of contact, remove contaminated clothing. In a shower, wash affected areas with soap and water for at least 15 minutes. Seek medical attention if irritation occurs or persists. Wash clothing before reuse.

Inhalation: Remove to fresh air, restore or assist breathing if necessary. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Obtain medical attention.

Ingestion: Swallowing methanol is potentially life threatening. Onset of symptoms may be delayed for 18 to 24 hours after ingestion. If conscious and medical aid is not immediately available, do not induce vomiting. In actual or suspected cases of ingestion, transport to medical facility immediately.

Note to Physician: Acute exposure to methanol, either through ingestion or breathing a high airborne concentration can result in symptoms appearing between 40 minutes and 72 hours after exposure. Symptoms and signs are usually limited to CNS, eyes, and gastrointestinal tract. Because of the initial CNS's effects of headache, an impression of ethanol intoxication. Blurred vision, decreased acuity, and photophobia are common complaints. Treatment protocols are available from most major hospitals and early collaboration with appropriate hospitals.

Note: Emergency assistance may also be available from the local poison control center.

5. Fire Fighting Measures

Flash Point: 11°C (52°F) (TCC)

Auto-ignition Temperature: 385°C (725°F) (NFPA 1978), 470°C (878°F) (Kirk-Othmer 1981; Ullmann 1975)

Lower Explosive Limit: 6% (NFPA, 1978)

Upper Explosion Limit: 36% (NFPA, 1978), 36.5% (Ullmann, 1975)

Sensitivity to Impact: Low

Sensitivity to Static Discharge: Low

Hazardous Combustion Products: Toxic gases and vapors; oxides; formaldehyde.

Extinguishing Media:

Small Fires: Dry chemical, CO₂, water spray.

Large Fires: Water spray, AFFF(R), Aqueous Film Foam (alcohol resistant) type with either a 3% or 6% foam proportioning system.

Fire Fighting Instructions: Methanol burns with a clear flame that is almost invisible in daylight. Stay Upwind! Isolate and restrict area access. Concentrations of greater than 25% 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. Fire fighters must wear full-face, positive pressure, self-contained breathing apparatus or an airline system and appropriate protective clothing. Protective firefighting clothing is not effective protection from methanol. Do not walk through spilled product.

Firefighting Equipment: Precautions for Fire Involving Tanks or Car/Trailer Loads – Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Fire Explosion: HIGHLY FLAMMABLE. Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Many liquids are lighter than water. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.

6. Accidental Release Measures

Overview: Flammable liquid which can burn without a visible flame. Release can cause immediate risk of fire and explosion. Eliminate all ignition sources, stop leak and use absorbent materials. If necessary, contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapor and fire hazard. Maximize methanol recovery for recycling or reuse. Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protection and remove all sources of ignition. Notify all governmental agencies as required by law.

Personal Protection: Full-face, positive pressure, self-contained breathing apparatus or airline, and protective clothing must be worn. Protective firefighting clothing is not effective protection from methanol.

Remedial Measures: Flammable liquid. Release can cause an immediate fire/explosion hazard. Eliminate all sources of ignition, stop leak, and use absorbent materials. Collect liquid with explosion proof pumps. Do not walk through spilled product as it may be on fire and not visible.

Small Spills: Soak up spill with non-combustible absorbent material. Recover methanol and dilute with water to reduce fire hazard. Prevent spilled methanol from entering sewers, confined spaces, drains, or waterways. Restrict access to unprotected personnel. Put material in suitable, covered, labeled containers. Flush area with water.

Large Spills: If necessary, contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapor and fire hazard. Maximize methanol recovery for recycling or reuse. Collect liquid with explosion proof pumps.



Environmental Precautions: Biodegrades easily in water. Methanol in fresh or salt water may have serious effects on aquatic life. A study on reported little effect on digestion at 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.

7. Handling and Storage

Handling Procedures: No smoking or open flame in storage, use, or handling areas. Use explosion proof electrical equipment. Ensure proper electrical grounding procedures are in place. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

Storage: Store in totally enclosed equipment designed to avoid ignition and human contact. Tanks must be grounded, vented, and should have vapor emission controls. Tanks must be diked. Avoid storage with incompatible materials. Anhydrous methanol is non-corrosive to most metals at ambient temperatures except for lead, nickel, monel, cast iron, and high silicone iron. Coatings of copper (or copper alloys), zinc, (including galvanized steel), or aluminum are unsuitable for storage. These materials may be attacked slowly by the methanol. Storage tanks of welded construction are normally satisfactory. They should be designed and built in conformance with good engineering practice for the material being stored. While plastics can be used for short term storage, they are generally not recommended for long-term storage due to deterioration effects and the subsequent risk of contamination.

Corrosion Rates for Several Construction Materials:

<u>Construction Material</u>	<u>Corrosion Rate</u>
Cast iron, monel, lead, nickel	<0.508 mm/year
High silicone iron	<0.51 mm/year
Polyethylene	Some attack
Neoprene, phenolic resins, natural rubber, butyl rubber	Satisfactory
Polyvinyl chloride, unplasticized	Resistant

8. Exposure Controls, Personal Protection

Engineering Controls: In confined areas, local and general ventilation should be provided maintain airborne concentrations below permissible exposure limits. Ventilation systems must be designed according to approved engineering standards.

Respiratory Protection: NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits.

Skin Protection: Butyl rubber and nitrile rubber are recommended for gloves. Check with manufacturer. Wear chemical resistant pants and jackets, preferably of butyl or nitrile rubber. Check with manufacturer.

Eye and Face Protection: Face shield and chemical splash goggles when a transfer is taking place.

Footwear: Chemical resistant and as specified by workplace.

Other: Eyewash and showers should be near work areas. **NOTE:** PPE must not be considered a long-term solution to exposure control. PPE usage must be accompanied by employer programs to properly select, fit, maintain, clean, and use. Consult a competent industrial hygiene resource to determine hazard potential and/or the PPE manufacturer to ensure adequate protection.

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		ppm	mg/m ³	ppm	mg/m ³
Methanol	TWA	200	260	200*	262
	STEL	NE	NE	250	328
*Skin Notation TVL Basis: critical effects; neuropathy, vision, central nervous system.					

9. Physical and Chemical Properties

Appearance	Liquid, clear, colorless	Odor	Mild characteristic alcohol odor
Odor Threshold	Detection: 4.2 - 5960 ppm (geometric mean) 160 ppm Recognition: 53 - 840 ppm	Boiling Point	64.7°C (149°F) at 101.3 kPa
pH	Not Applicable	Critical Temperature	293.4°C (560.1°F)
Vapor Pressure	12.8 kPa at 20°C (68°F)	Relative Density	0.791
Solubility in Other Liquids	Soluble in all proportions in other alcohols, esters, ketones, and most other organic solvents	Partition Coefficient Log	(oct) = - 0.82
Evaporation Rate	4.1 (n-butyl acetate = 1)	Solubility	Completely soluble
Vapor Density	1.105 at 15°C (59°F)	Freezing Point	- 97.8°C (-144°F)

10. Stability and Reactivity

Chemical Stability: Yes

Incompatibility: Yes. Avoid contact with bleach, strong oxidizers, strong mineral or organic acids, and strong bases. Contact with these materials may cause a violent or explosive reaction. Maybe corrosive to lead, aluminum, magnesium, and platinum.

Conditions of Reactivity: Presence of incompatible materials and ignition sources.

Hazardous Decomposition Products: Formaldehyde, carbon dioxide, and carbon monoxide.

Hazardous Polymerization: Will not occur.

11. Toxicological Information

Chemical Name	Oral LD ₅₀ (rat)	Dermal LD ₅₀ (rabbit)	Inhalation LC ₅₀ (rat)
Ammonia	5628 mg/kg	20 ml/kg	64000 ppm

Acute Exposure: See Section 2 of this SDS.

Chronic Exposure: See Section 2 of this SDS.

Exposure Limits: See Section 8 of this SDS.

Irritancy: See Section 2 of this SDS.

Sensitization: This product is not anticipated to be a sensitizer.

Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC, ACGIH, NTP or OSHA.

Teratogenicity: This product is not anticipated to be a teratogen.

Reproductive Toxicity: This product has been reported to cause birth defects in rats exposed to 20,000 ppm.

Mutagenicity: No available data.

Synergistic Products: None Known.

12. Ecological Information

Environmental Toxicity: Methanol in fresh or salt water may have serious effects on aquatic life.



A study on methanol's toxic effects on sewage sludge at 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down into carbon dioxide and water.

Biodegradability: Biodegrades easily in water.

Terrestrial/Microorganism Toxicity:

Acute: Ecological data does not exist.

Chronic: Ecological data does not exist.

Bioaccumulation/Accumulation: Not Established.

Chemical Fate Information: Persistence & Degradability – Readily biodegradable.

General Comments: Any other adverse environmental effects, such as environmental fate (exposure), ozone depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and global warming potential are indicated in this section if data exists. Otherwise, this data has not been established.

13. Disposal Considerations

General Comments: Review federal, provincial, or state and local government requirements prior to disposal. Store material for disposal as indicated in Section 7 "**Handling and Storage**". Disposal by controlled incineration or by secure land fill may be acceptable.

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging: Dispose of as unused product.

14. Transport Information

Transport of Dangerous Goods: Methanol, Class 3(6.1)
UN1230, P.G. II
Limited Quantity: ≤ 1 liters

**United States Department of Transport:
(49 CFR) (Domestic Only)** Methanol, Class C, UN1230, P.G. II
(RQ 5000 lbs/2270 kg)
Limited Quantity: ≤ 1 liter

**International Air Transport Association:
(IATA)** Methanol, Class 3(6.1), UN1230, P.G. II
Packaging Instruction: 305
1 liter maximum per package

**International Maritime Organization:
(IMO)**

Methanol, Class C, UN1230, P.G. II

Flash Point = 12°C

EmS No. F-E, S-D

St o w a g e C a t e g o r y " B "
Clear of living quarters

15. Regulatory Information

United States

DOT Label Symbol and Hazard Classification



SARA Title III (Superfund Amendments and Reauthorization Act)

311/312 Hazard Categories: Immediate (Acute) Health Effects, Chronic Health Effects

Fire: Yes **Pressure Generating:** No **Reactivity:** No **Acute:** Yes **Chronic:** Yes

CERCLA (Comprehensive Response, Compensation, and Liability Act)

Chemical Name	Wt. %	CERCLA RQ
Methanol	99 - 100	5000 pounds

States with Special Requirements

Chemical Name	Requirements
Ammonia	CA Hazardous Substance Delaware Air Quality Management Illinois Toxic Air Contaminant Maine Hazardous Air Pollutant Massachusetts Hazardous Substance Minnesota Hazardous Substance New Jersey RTK Hazardous Substance New York Hazardous Substance Pennsylvania Hazardous Substance Washington PELs for Air Contaminants

Canada

WHMIS Hazard Symbol and Classification (CEPA, Domestic Substances List)



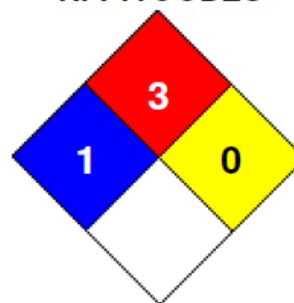
WHMIS CLASS: Class B2, Flammable and Combustible Material
 Class D1, Materials Causing Immediate & Serious Toxic Effects
 Class D2 – Materials Causing Other Toxic Effects

16. Other Information

HMIS RATING

HEALTH	*	2
FLAMMABILITY		3
PHYSICAL HAZARD		0
PERSONAL PROTECTION		H

NFPA CODES



Relevant R-Phrases:

R11: Highly flammable.

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

Preparation Date: July 29, 2013

Prepared By: Total Safety d/b/a EHS Services for
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 Nederland, Texas 77627

Total Safety d/b/a EHS Services SDS No.: OCIB101-002

Disclaimer: The information above is believed to be accurate and represents the best information currently available to us. Users should make their own investigation to determine the suitability of the information for their particular purposes. This document is intended as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.

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Revisions: This SDS replaces the 07/04/12 SDS issued by OCI Methanol Marketing, LLC.