

# Material Safety Data Sheet

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## Section I - Chemical Product And Company Identification

### Product Name: Methanol

CAS Number: 67-56-1

HBCC MSDS No. CM07000



# HILL BROTHERS Chemical Co.

1675 NORTHMAIN STREET • ORANGE, CALIFORNIA 92867-3499  
(714) 998-8800 • FAX: (714) 998-6310  
<http://hillbrothers.com>

1675 No. Main Street, Orange, California 92867

Telephone No: 714-998-8800 | Outside Calif: 800-821-7234 | Chemtrec: 800-424-9300

## Section II - Composition/Information On Ingredients

Chemical Name	CAS Number	%	Exposure Limits (TWAs) in Air		
			ACGIH TLV	OSHA PEL	STEL
Methanol	67-56-1	100	200 ppm	200 ppm	250 ppm

## Section III - Hazard Identification

**Routes of Exposure:** Methanol may affect the body either through ingestion, inhalation, or contact with the eyes and/or skin.

### Summary of Acute Health Hazards

**Ingestion:** Toxic. Symptoms parallel inhalation. Can intoxicate and cause blindness. Usual fatal dose: 100-125 milliliters.

**Inhalation:** A slight irritant to the mucous membranes. Toxic effects exerted upon nervous system, particularly the optic nerve. Once absorbed into the body, it is very slowly eliminated. Symptoms of overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. A person may get better but then worse again up to 30 hours later.

**Skin:** Prolonged contact with the skin may cause reddening and defatting of the skin and may aggravate an existing dermatitis.

**Eyes:** May cause mild redness and swelling of the conjunctiva, with transient superficial injury of the cornea.

**Summary of Chronic Health Hazards:** N/A

**Signs and Symptoms of Exposure:** Methanol may affect the body either through ingestion, inhalation, or contact with the eyes and/or skin.

**Effects of Overexposure:** : Long-term repeated exposure to high vapor concentrations (greater than 1000 ppm may produce impairment of vision.

**Medical Conditions Generally Aggravated by Exposure:** Persons with pre-existing skin disorders, impaired liver function, impaired renal function, or pre-existing eye diseases might have increased health risks working with methanol.

**Note to Physicians:** : Treatment should include the following: hemodialysis; the intravenous administration of ethanol (10 ml per hour) to interfere with the metabolism of methanol; and the administration of sodium bicarbonate to correct acidosis. Keep under medical supervision for at least 48 hours.

#### Section IV - First Aid Measures

**Ingestion:** Give two glasses of water and induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY. Do not make an unconscious person vomit.

**Inhalation:** Move the exposed person to fresh air at once. If breathing is difficult, administer oxygen; if breathing has stopped, perform artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

**Skin:** Promptly flush the contaminated skin with water. If skin irritation persists, GET MEDICAL ATTENTION. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

**Eyes:** Wash eyes immediately with large amounts of water for 15 minutes, lifting the lower and upper lids occasionally. GET MEDICAL ATTENTION IMMEDIATELY. Contact lenses should not be worn when working with this chemical.

#### Section V - Fire Fighting Measures

**Flash Point:** 50°F, 10°C, T.C.C.

**Autoignition Temperature:** 725°F

**Lower Explosive Limit:** 6.61% by volume in air

**Upper Explosive Limit:** 36.5% by volume in air

**Unusual Fire and Explosion Hazards:** Vapors formed from this liquid, are heavier than air, and may be moved by air currents. Flashback of flame along the vapor trail to the handling site may occur.

**Extinguishing Media:** Dry chemical, alcohol foam, or carbon dioxide.

**Special Firefighting Procedures:** Use water spray to cool fire-exposed containers and structures. Approach methanol fire with caution; methanol burns with an almost invisible flame in daylight. Use self-contained breathing apparatus and protective clothing.

#### Section VI - Accidental Release Measures

**Steps To Be Taken In Case Material Is Released Or Spilled:** [Spills may need to be reported to the National Response Center (800/424-8802) CERCLA Reportable Quantity (RQ) is 5000 pounds]. Eliminate all ignition sources. Handling equipment must be grounded to prevent sparking. For large spills, evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak only if safe to do so. Dike and contain. If vapor cloud forms, water fog may be used to suppress; contain run-off. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material, and place in non-leaking containers for proper disposal. Flush area with water to remove trace residue; dispose of flush solutions as above. For small spills, take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.

## Section VII - Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be 'No Smoking' areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

**Other Precautions:** The reaction of methanol with nitric acid is considered hazardous not only because it is exothermic, but also because it produces methyl nitrate. Methyl nitrate reportedly can explode violently if shocked mechanically or heated. Disposal: At low concentrations in water, methanol is readily biodegradable in biological wastewater treatment plant.

## Section VIII - Exposure Controls/Personal Protection

**Respiratory Protection:** Use MSHA/NIOSH approved self-contained breathing apparatus in high vapor concentrations.

### Respirator Selection

2000 ppm: SA/SCBA

10,000 ppm: SAF/SCBAF

25,000 ppm: SAF: PD,PP,CF

Escape: SCBA

**Ventilation:** This product should be confined within closed equipment, in which case general (mechanical) room ventilation should be suitable. Special, local ventilation is needed at points where vapors are expected to be vented to the workplace air.

**Protective Clothing:** Avoid prolonged or repeated contact with the skin. Wear chemical-resistant clothing, including boots, gloves, lab coat apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:** Avoid contact with the eyes. Wear chemical goggles if there is the likelihood of contact with the eyes. Maintain eye wash fountain and quick-drench facilities in work area.

**Other Protective Clothing or Equipment:** An eye bath, safety shower, chemical apron and boots should be available.

**Work/Hygienic Practices:** All employees who handle methanol should wash their hands before eating, smoking, or using the toilet facilities. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

## Section IX - Physical and Chemical Properties

**Physical State:** Liquid

**pH:** N/A

**Melting Point/Range:** -98°C (-144°F)

**Boiling Point/Range:** 64°C (148°F)

**Appearance/Color/Odor:** Watery, colorless liquid with a sweet, alcohol odor.

**Solubility in Water:** Complete

**Vapor Pressure(mmHg):** 127 @ 25°C  
(77°F)

**Specific Gravity(Water=1):** 0.792 @ 20°C  
(68°F)

**Molecular Weight:** 32.04

**Vapor Density(Air=1):** 1.11

**% Volatiles:** 100%

**Evaporation Rate:** 2.6 (n-butyl acetate = 1) **Viscosity:** 0.58 mPa.s (20°C)

**Freezing Point:** -98°C

**Odor Threshold:** 100 ppm

**Octanol/Water Partition Coefficient:** P: 0.17; log P: -0.77

**How to detect this compound:** Adsorption on silica, workup with water, analysis by gas chromatography.

### Section X - Stability and Reactivity

**Stability:** Stable

**Hazardous Polymerization:** Will Not Occur

**Conditions to Avoid:** Avoid heat, sparks and flame - all ignition sources.

**Materials to Avoid:** Alkali metals, concentrated nitric and sulfuric acids, aldehydes, acyl chlorides, strong bases, and strong oxidizers. The reaction of methanol with nitric acid is considered hazardous not only because it is exothermic, but also because it produces methyl nitrate. Methyl nitrate reportedly can explode violently if shocked mechanically or heated.

**Hazardous Decomposition Products:** Burning can produce carbon monoxide and/or carbon dioxide, and formaldehyde.

### Section XI - Toxicological Information

**General:** Prolonged and repeated exposure to high vapor concentrations, skin absorption or ingestion of methanol may result in visual disturbances, metabolic acidosis, headache, giddiness, nausea, insomnia, gastric disturbance, dizziness, and slow breathing. There have been severe cases reported of blindness, coma and death due to the ingestion of methanol. Acute toxicity data, if available, are listed below.

#### Toxicity Data

Oral LD<sub>50</sub> = 6.2 g/kg (rat),

Inhalation LC-50: (rat) 8h: > 22500 ppm

Dermal LD-50: (rabbit) 15.8 g/kg

Skin irritation: (guinea pig) moderate

Eye Irritation: (rabbit) slight

IDLH Value: 25,000 ppm,

Aquatic: 250 ppm/11 hr/goldfish/died/fresh water,

Biological Oxygen Demand (BOD): 0.6 to 1.12 lb/lb in 5 days

### Section XII - Ecological Information

#### **Oxygen Demand Data:**

BOD-5: 0.76 – 1.12 g/g

BOD-20: 1.26 g/g

COD: 1.05 – 1.5 g/g

**Acute Aquatic Effects Data:**

96 h LC-50 (fathead minnow): > 10000 microliter(s)/l NOEC: 10000 microliter(s)A  
96 h LC-50 (sideswimmer): > 100 microliter(s)/l NOEC: 100 microliter(s)/l  
24 h EC-50 (daphnid): 10000 mg/l  
96 h LC-50 (daphnid): > 1000 microliter(s)/l NOEC: 100 microliter(s)/l  
96 h LC-50 (ramshorn snail): > 100 microliter(s)A NOEC: 100 microliter(s)/l  
96 h LC-50 (aquatic earthworm): > 100 microliter(s)A NOEC: 100 microliter(s)A  
96 h LC-50 (pill bug): > 100 microliter(s)A NOEC: 100 microliter(s)/l  
96 h LC-50 (flatworm): > 100 microliter(s)/l NOEC: 100 microliter(s)/l

**Section XIII - Disposal Considerations**

This product when spilled or disposed is a hazardous waste (RCRA-40 CFR 261). Preferred method is incineration or biological treatment in a federal/state approved facility. Consult Federal, State, or Local Authorities for proper disposal procedures.

**Section XIV - Transport Information**

**DOT Proper Shipping Name:** Methanol  
**DOT Hazard Class/ I.D. No.:** 3, UN1230, II

**Section XV - Regulatory Information**

**CERCLA Reportable Quantity:** 5,000 Pounds (2270 Kilograms)  
**RCRA Code:** U154  
**Uniform Fire Code Rating:** Class IB Flammable Liquid

**SARA 311-312 Hazard Classification**

Immediate (acute) health hazard  
Delayed (chronic) health hazard  
Fire hazard

**NFPA Rating:** Health - 1; Fire - 3; Reactivity - 0  
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**Carcinogenicity Lists:** NTP: No **IARC Monograph:** No **OSHA Regulated:** No

**Section 313 Supplier Notification:** This product contains the following toxic chemical(s) subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To Know Act of 1986 and of 40 CFR 372:

<u>CAS #</u>	<u>Chemical Name</u>	<u>% By Weight</u>
67-56-1	Methanol	100

**Section XVI - Other Information**

**Synonyms/Common Names:** Methyl Alcohol, Carbinol, Wood Alcohol, Wood Spirit  
**Chemical Family/Type:** Alcohols  
**Sections Changed Since Last Revision:** III, IV, V, VIII, IX, X, XI, XII, XV

**IMPORTANT!** Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The MSDS information is based on sources believed to be reliable. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.