

# Material Safety Data Sheet



Methanol

## Section 1. Chemical product and company identification

<b>Product Name</b>	: Methanol
<b>Supplier</b>	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
<b>Synonym</b>	: alcool methylique (french); alcool metilico (italian); carbinol; colonial spirit; columbian spirit; columbian spirits (dot); methanol (dot); metanolo (italian); methyl alcohol; methyl alcohol (dot); methylol; methylalkohol (german); methyl hydroxide; metylowy alkohol (polish); monohydroxymethane; pyroxylic spirit; wood alcohol; wood naphtha; wood spirit
<b>Material uses</b>	: Other non specified industry: MANUFACTURE OF FORMALDEHYDE AND DIMETHYL TEREPHTHALATE; CHEMICAL SYNTHESIS (METHY AMINES, METHYL CHLORIDE, METHYL METHACRYLATE, AUTOMOTIVE FUELS); ANTIFREEZE; SOLVENT FOR NITROCELLULOSE, ETHYLCELLULOSE, POLYVINYL BUTYRAL, SHELLAC, ROSIN, MANILA RESIN, DYES; DENATURANT FOR ETHYL ALCOHOL; DEHYDRATOR FOR NATURAL GAS; FUEL FOR UTILITY PLANTS (METHYL FUEL); FEEDSTOCK FOR MANUFACTURE OF SYNTHETIC PROTEINS BY CONTINUOUS FERMENTATION; SOURCE OF HYDROGEN FOR FUEL CELLS; HOME HEATING OIL EXTENDER.
<b>MSDS#</b>	: 001065
<b>Date of Preparation/Revision</b>	: <b>10/30/2007.</b>
<b>In case of emergency</b>	: 1-866-734-3438

## Section 2. Hazards identification

<b>Physical state</b>	: Liquid. (CLEAR, COLORLESS, FLAMMABLE, POISONOUS LIQUID WITH CHARACTERISTIC PUNGENT ODOR)
<b>Emergency overview</b>	: Danger! HIGHLY FLAMMABLE LIQUID AND VAPOR. CAUSES DAMAGE TO THE FOLLOWING ORGANS: EYES. VAPOR MAY CAUSE FLASH FIRE. MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation.
<b>Potential acute health effects</b>	
<b>Eyes</b>	: Irritating to eyes.
<b>Skin</b>	: Practically non-toxic in contact with skin.
<b>Inhalation</b>	: Irritating to respiratory system.
<b>Ingestion</b>	: May be harmful if swallowed.
<b>Potential chronic health effects</b>	: <b>CARCINOGENIC EFFECTS</b> Not available. <b>MUTAGENIC EFFECTS</b> Not available. <b>TERATOGENIC EFFECTS</b> : Not available.
<b>Medical conditions aggravated by overexposure</b>	: Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
<b>See toxicological Information (section 11)</b>	

### **Section 3. Composition, Information on Ingredients**

#### United States

methanol 67-56-1 100

#### Exposure limits

**ACGIH TLV (United States, 1/2007). Skin**  
STEL: 250 ppm 15 minute(s).  
TWA: 200 ppm 8 hour(s).  
**NIOSH REL (United States, 12/2001). Skin**  
STEL: 250 ppm 15 minute(s).  
TWA: 200 ppm 10 hour(s).  
**OSHA PEL (United States, 11/2006).**  
TWA: 200 ppm 8 hour(s).  
**ACGIH TLV (United States, 1/2007). Skin**  
STEL: 328 mg/m<sup>3</sup> 15 minute(s).  
TWA: 262 mg/m<sup>3</sup> 8 hour(s).  
**NIOSH REL (United States, 12/2001). Skin**  
STEL: 325 mg/m<sup>3</sup> 15 minute(s).  
TWA: 260 mg/m<sup>3</sup> 10 hour(s).  
**OSHA PEL (United States, 11/2006).**  
TWA: 260 mg/m<sup>3</sup> 8 hour(s).

### **Section 4. First aid measures**

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin contact** : Wash with soap and water. Get medical attention if irritation develops.
- Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

### **Section 5. Fire fighting measures**

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 464°C (867.2°F)
- Flash point** : Open cup: 15.85°C (60.5°F).
- Flammable limits** : Lower: 6% Upper: 36%
- Products of combustion** : These products are carbon oxides (CO, CO<sub>2</sub>).
- Fire fighting media and instructions** : In case of fire, use water spray (fog), foam, dry chemicals, or CO<sub>2</sub>.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas, travel considerable distance to source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

### **Section 6. Accidental release measures**

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion proof means to transfer material to a sealed, appropriate container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Methanol

### Section 7. Handling and storage

- Handling** : Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
- Storage** : Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

### Section 8. Exposure Controls, Personal Protection

- Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.
- Personal protection**
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Personal protection in case of a large spill** : Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product name**  
**United States**

**Exposure limits**

methanol

**ACGIH TLV (United States, 1/2007). Skin**

STEL: 250 ppm 15 minute(s).

TWA: 200 ppm 8 hour(s).

**NIOSH REL (United States, 12/2001). Skin**

STEL: 250 ppm 15 minute(s).

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**OSHA PEL (United States, 11/2006).**

TWA: 200 ppm 8 hour(s).

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STEL: 328 mg/m<sup>3</sup> 15 minute(s).

TWA: 262 mg/m<sup>3</sup> 8 hour(s).

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STEL: 325 mg/m<sup>3</sup> 15 minute(s).

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**OSHA PEL (United States, 11/2006).**

TWA: 260 mg/m<sup>3</sup> 8 hour(s).

### Section 9. Physical and chemical properties

- Physical state** : Liquid. (CLEAR, COLORLESS, FLAMMABLE, POISONOUS LIQUID WITH CHARACTERISTIC PUNGENT ODOR)
- Odor** : FAINTLY SWEET; CHARACTERISTIC PUNGENT
- Molecular weight** : 32.05 g/mole
- Molecular formula** : C-H4-O
- Boiling/condensation point** : 64.5°C (148.1°F)
- Melting/freezing point** : -97.8°C (-144°F)
- Specific gravity** : 0.792 (Water = 1)

## Methanol

- Vapor density** : 1.11 (Air = 1)  
**Evaporation rate** : 2.1 compared to Butyl acetate.

## Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.  
**Incompatibility with various substances** : Extremely reactive or incompatible with oxidizing agents.

## Section 11. Toxicological information

### Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
methanol	LD50	5600 mg/kg	Oral	Rat
	LD50	14200 mg/kg	Oral	Rabbit
	LD50	7300 mg/kg	Oral	Mouse
	LD50	15800 mg/kg	Dermal	Rabbit
	LDLo	7500 mg/kg	Oral	Rabbit
	LDLo	143 mg/kg	Oral	human
	LDLo	420 mg/kg	Oral	Mouse
	LDLo	393 mg/kg	Dermal	Monkey.

**IDLH** : 6000 ppm

**Chronic effects on humans** : Causes damage to the following organs: eyes.  
May cause damage to the following organs: gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : No specific information is available in our database regarding the other toxic effects of this material for humans.

### Specific effects

- Carcinogenic effects** : No known significant effects or critical hazards.  
**Mutagenic effects** : No known significant effects or critical hazards.  
**Reproduction toxicity** : No known significant effects or critical hazards.

## Section 12. Ecological information

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
methanol	Daphnia magna (EC50)	48 hour(s)	>10000 mg/l
	Oncorhynchus mykiss (EC50)	48 hour(s)	13200 mg/l
	Lepomis macrochirus (EC50)	48 hour(s)	16000 mg/l
	Daphnia magna (LC50)	96 hour(s)	>100 mg/l
	Pimephales promelas (LC50)	96 hour(s)	>100 mg/l
	Lepomis macrochirus (LC50)	96 hour(s)	15400 mg/l

**Products of degradation** : These products are carbon oxides (CO, CO<sub>2</sub>) and water.




**Toxicity of the products of biodegradation** : The products of degradation are less toxic than the product itself.

## Section 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

**Consult your local or regional authorities.**

## Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
<b>DOT Classification</b>	UN1230	METHANOL	3	II		<p><b>Reportable quantity</b> 5000 lbs. (2268 kg)</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger Aircraft</b> Quantity limitation: 1 L</p> <p><b>Cargo Aircraft</b> Quantity limitation: 60 L</p> <p><b>Special provisions</b> IB2, T7, TP2</p>
<b>TDG Classification</b>	UN1230	METHANOL	3	II		<p><b>Explosive Limit and Limited Quantity Index</b> 1</p> <p><b>Passenger Carrying Road or Rail Index</b> 1</p> <p><b>Special provisions</b> 43</p>
<b>Mexico Classification</b>	UN1230	METHANOL	3	II		<p><b>Reportable quantity</b> 5000 lbs. (2268 kg)</p> <p><b>Limited quantity</b> Yes.</p> <p><b>Packaging instruction</b> <b>Passenger Aircraft</b> Quantity limitation: 1 L</p> <p><b>Cargo Aircraft</b> Quantity</p>

<b>Methanol</b>						
						limitation: 60 L
						<b>Special provisions</b> IB2, T7, TP2

## Section 15. Regulatory information

### United States

**HCS Classification** : Flammable liquid  
Target organ effects

**U.S. Federal regulations** : TSCA 8(b) inventory: methanol  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: methanol  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: methanol:  
Fire hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
Clean air act (CAA) 112 accidental release prevention: No products were found.  
Clean air act (CAA) 112 regulated flammable substances: No products were found.  
Clean air act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: methanol	67-56-1	100
<b>Supplier notification</b>	: methanol	67-56-1	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations** : Pennsylvania RTK: methanol: (environmental hazard, generic environmental hazard)  
Massachusetts RTK: methanol  
New Jersey: methanol

### Canada

**WHMIS (Canada)** : Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).  
Class D-1B: Material causing immediate and serious toxic effects (TOXIC).  
Class D-2A: Material causing other toxic effects (VERY TOXIC).  
Class D-2B: Material causing other toxic effects (TOXIC).  
CEPA DSL: methanol

## Section 16. Other information

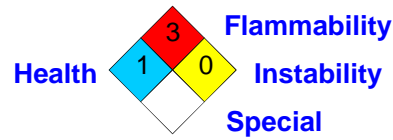
**Label Requirements** : HIGHLY FLAMMABLE LIQUID AND VAPOR.  
CAUSES DAMAGE TO THE FOLLOWING ORGANS: EYES.  
VAPOR MAY CAUSE FLASH FIRE.  
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.

**Hazardous Material Information System (U.S.A.)** :

Health	*	1
Fire hazard		3
Reactivity		0
Personal protection		C

**Methanol**

**National Fire Protection Association (U.S.A.) :**



**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.