



**LEONID CHEMICALS PVT. LTD.,  
BANGALORE**

**An ISO-9001:2008 Certified Company  
Quality Assurance Department**

(CODE) DOCUMENT : WI  
(CODE) SECTION : WI/SM  
(DATE) : 01.04.2011



Issue : 02  
Rev.: 00

Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL

1 | Page of 1

SECTION1-CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name:

Methanol

Catalog Number:

M012

Synonyms:

Carbinol; Methyl alcohol; Methyl hydroxide; Monohydroxymethane; Wood alcohol; Wood naptha; Wood spirits; Columbian spirits; Methanol.

Company Information:

LEONID CHEMICALS Pvt Ltd,  
62/A-2, 1<sup>st</sup> Stage,  
Yeshvanthpur Industrial Suburb,  
Ashokpuram School Road,  
Bangalore -22, Karnataka, INDIA  
Ph- +91-80-23378354  
Fax: +918023378354/23377126

SECTION2 -COMPOSITION, INFORMATION ON INGREDIENTS

CAS # : 67-56-1  
Chemical Name : Methanol  
% : > 99%  
EINECS# : 200-659-6

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI</p> <p>(CODE) SECTION : WI/SM</p> <p>(DATE) : 01.04.2011</p>	 <p>Issue : 02</p> <p>Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>2   Page of 1</p>	

Hazard Symbols : None Listed  
Risk Phrases : None Listed

-----  
**SECTION 3 -HAZARDS IDENTIFICATION**  
-----

**EMERGENCY OVERVIEW**

Appearance: APHA: 10 max clear liquid.

Flash Point: 12 deg C.

**Danger! Poison!** May be fatal or cause blindness if swallowed. Vapor harmful. **Flammable liquid and vapor.** Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye, skin, and respiratory tract irritation. May cause central nervous system depression. Cannot be made non-poisonous.

**Target Organs:** Eyes, nervous system, optic nerve.

**Potential Health Effects**

**Eye:** May cause painful sensitization to light. Methanol is a mild to moderate eye irritant. Inhalation, ingestion or skin absorption of methanol can cause significant disturbances in vision, including blindness.

**Skin:** Causes moderate skin irritation. May be absorbed through the skin in harmful amounts. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances.

**Ingestion:** May be fatal or cause blindness if swallowed. Aspiration hazard. Cannot be made non-poisonous. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May cause cardiopulmonary system effects.

	<p align="center"><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p align="center">An ISO-9001:2008 Certified Company</p> <p align="center">Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI</p> <p>(CODE) SECTION : WI/SM</p> <p>(DATE) : 01.04.2011</p>	 <p>Issue : 02</p> <p>Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>3   Page of 1</p>	

**Inhalation:** Methanol is toxic and can very readily form extremely high vapor concentrations at room temperature. Inhalation is the most common route of occupational exposure. At first, methanol causes CNS depression with nausea, headache, vomiting, dizziness and in coordination. A time period with no obvious symptoms follows (typically 8-24 hrs). This latent period is followed by metabolic acidosis and severe visual effects which may include reduced reactivity and/or increased sensitivity to light, blurred, double and/or snowy vision, and blindness. Depending on the severity of exposure and the promptness of treatment, survivors may recover completely or may have permanent blindness, vision disturbances and/or nervous system effects.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. Chronic exposure may cause effects similar to those of acute exposure. Methanol is only very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of a harmful amount. Methanol has produced fetotoxicity in rats and teratogenicity in mice exposed by inhalation to high concentrations that did not produce significant maternal toxicity.

.....

**SECTION4 -FIRST AID MEASURES**

.....

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

**Ingestion:** Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI (CODE) SECTION : WI/SM (DATE) : 01.04.2011</p>	 <p>Issue : 02 Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>4   Page of 1</p>	

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Notes to Physician:** Effects may be delayed.

**Antidote:** Ethanol may inhibit methanol metabolism.

---

## SECTION5 -FIREFIGHTING MEASURES

---

**General Information:** Ethanol may inhibit methanol metabolism. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water.

**Flash Point:** 12 deg C ( 53.60 deg F)

**Autoignition Temperature:** 455 deg C ( 851.00 deg F)

**Explosion Limits, Lower:**6.0 vol %

**Upper:** 31.00 vol %

**NFPA Rating:** (estimated) Health: 1; Flammability: 3; Instability:

---

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI (CODE) SECTION : WI/SM (DATE) : 01.04.2011</p>	 <p>Issue : 02 Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>5   Page of 1</p>	

**SECTION 6 -ACCIDENTAL RELEASE MEASURES**

.....  
**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Use water spray to disperse the gas/vapor. Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Do not use combustible materials such as sawdust. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

.....  
**SECTION 7 -HANDLING and STORAGE**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid use in confined spaces.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep containers tightly closed.

.....  
**SECTION 8 -EXPOSURE CONTROLS, PERSONAL PROTECTION**

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI (CODE) SECTION : WI/SM (DATE) : 01.04.2011</p>	 <p>Issue : 02 Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>6   Page of 1</p>	

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Exposure Limits**

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methanol	200 ppm TWA; 250 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	200 ppm TWA; 260 mg/m <sup>3</sup> TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m <sup>3</sup> TWA

OSHA Vacated PELs: Methanol: 200 ppm TWA; 260 mg/m<sup>3</sup> TWA

**Personal Protective Equipment**

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear butyl rubber gloves, apron, and/or clothing.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

-----  
**SECTION 9 -PHYSICAL AND CHEMICAL PROPERTIES**  
-----

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI (CODE) SECTION : WI/SM (DATE) : 01.04.2011</p>	 <p>Issue : 02 Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>7   Page of 1</p>	

Physical State: Clear liquid

Appearance: clear, colorless - APHA: 10 max

Odor: alcohol-like - weak odor

pH: Not available.

Vapor Pressure: 128 mm Hg @ 20 deg C

Vapor Density: 1.11 (Air=1)

Evaporation Rate: 5.2 (Ether=1)

Viscosity: 0.55 cP 20 deg C

Boiling Point: 64.7 deg C @ 760 mmHg

Freezing/Melting Point:-98 deg C

Decomposition Temperature: Not available.

Solubility: miscible

Specific Gravity/Density: 0.7910 g/cm<sup>3</sup> @ 20°C

Molecular Formula: CH<sub>4</sub>O

Molecular Weight: 32.04

---

## SECTION 10 -STABILITY AND REACTIVITY

---

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** High temperatures, ignition sources, confined spaces.

**Incompatibilities with Other Materials:** Oxidizing agents, reducing agents, acids, alkali metals, potassium, sodium, metals as powders (e.g. hafnium, raney nickel), acid anhydrides, acid chlorides, powdered aluminum, and powdered magnesium.

**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, formaldehyde.

	<p align="center"><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p align="center">An ISO-9001:2008 Certified Company</p> <p align="center">Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI</p> <p>(CODE) SECTION : WI/SM</p> <p>(DATE) : 01.04.2011</p>	 <p>Issue : 02</p> <p>Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>			<p>8   Page of 1</p>

Hazardous Polymerization: Will not occur.

-----

**SECTION 11 -TOXICOLOGICAL INFORMATION**

-----

RTECS#:

CAS# 67-56-1: PC1400000

LD50/LC50:

CAS# 67-56-1:

- Draize test, rabbit, eye: 40 mg Moderate;
- Draize test, rabbit, eye: 100 mg/24H Moderate;
- Draize test, rabbit, skin: 20 mg/24H Moderate;
- Inhalation, rabbit: LC50 = 81000 mg/m<sup>3</sup>/14H;
- Inhalation, rat: LC50 = 64000 ppm/4H;
- Oral, mouse: LD50 = 7300 mg/kg;
- Oral, rabbit: LD50 = 14200 mg/kg;
- Oral, rat: LD50 = 5600 mg/kg;
- Skin, rabbit: LD50 = 15800 mg/kg;

Human LDLo Oral: 143 mg/kg; Human LDLo Oral: 428 mg/kg; Human TCLo Inhalation; 300 ppm caused visual field changes & headache; Monkey LDLo Skin: 393 mg/kg. Methanol is significantly less toxic to most experimental animals than humans, because most animal species metabolize methanol differently. Non-primate species do not ordinarily show symptoms of metabolic acidosis or the visual effects which have been observed in primates and humans.

**Carcinogenicity:**

CAS# 67-56-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.



 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p><b>Quality Assurance Department</b></p>	<p>(CODE) DOCUMENT : WI</p> <p>(CODE) SECTION : WI/SM</p> <p>(DATE) : 01.04.2011</p>	 <p>Issue : 02</p> <p>Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>9   Page of 1</p>	

**Epidemiology:** No information found

**Teratogenicity:** There is no human information available. Methanol is considered to be a potential developmental hazard based on animal data. In animal experiments, methanol has caused fetotoxic or teratogenic effects without maternal toxicity.

**Reproductive Effects:** See actual entry in RTECS for complete information.

**Mutagenicity:** See actual entry in RTECS for complete information.

**Neurotoxicity:** ACGIH cites neuropathy, vision and CNS under TLV basis.

-----  
**SECTION12 -ECOLOGICAL INFORMATION**  
 -----

**Ecotoxicity:** Fish: Fathead Minnow: 29.4 g/L; 96 Hr; LC50 (unspecified)Fish: Goldfish: 250 ppm; 11 Hr; resulted in deathFish: Rainbow trout: 8000 mg/L; 48 Hr; LC50 (unspecified)Fish: Rainbow trout: LC50 = 13-68 mg/L; 96 Hr.; 12 degrees CFish: Fathead Minnow: LC50 = 29400 mg/L; 96 Hr.; 25 degrees C, pH 7.63Fish: Rainbow trout: LC50 = 8000 mg/L; 48 Hr.; Unspecified Bacteria: Phytobacterium phosphoreum: EC50 = 51,000-320,000 mg/L; 30 minutes; Microtox test No data available.

**Environmental:** Dangerous to aquatic life in high concentrations. Aquatic toxicity rating: TLM 96>1000 ppm. May be dangerous if it enters water intakes. Methyl alcohol is expected to biodegrade in soil and water very rapidly. This product will show high soil mobility and will be degraded from the ambient atmosphere by the reaction with photochemically produced hydroxyl radicals with an estimated half-life of 17.8 days. Bioconcentration factor for fish (golden ide) < 10. Based on a log Kow of -0.77, the BCF value for methanol can be estimated to be 0.2.

	<b>LEONID CHEMICALS PVT. LTD., BANGALORE</b>  <b>An ISO-9001:2008 Certified Company</b>  <b>Quality Assurance Department</b>	(CODE) DOCUMENT : WI  (CODE) SECTION : WI/SM  (DATE) : 01.04.2011	  Issue : 02  Rev.: 00
<b>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</b>		<b>10   Page of 1</b>	

Physical: No information available.

Other: No information available.

-----

**SECTION 13 -DISPOSAL CONSIDERATIONS**

-----

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 67-56-1: waste number U154 (Ignitable waste).

-----

**SECTION 14 -TRANSPORT INFORMATION**

-----

	US DOT	Canada TDG
Shipping Name:	METHANOL	METHANOL
Hazard Class:	3	3
UN Number:	UN1230	UN1230
Packing Group:	II	II
Additional Info:		FLASHPOINT 11 C

-----

**SECTION15 -REGULATORY INFORMATION**

-----

	<b>LEONID CHEMICALS PVT. LTD., BANGALORE</b>  <b>An ISO-9001:2008 Certified Company</b>  <b>Quality Assurance Department</b>	(CODE) DOCUMENT : WI  (CODE) SECTION : WI/SM  (DATE) : 01.04.2011	  Issue : 02  Rev.: 00
<b>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</b>		11   Page of 1	

## US FEDERAL

### TSCA

CAS# 67-56-1 is listed on the TSCA inventory.

### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

### Section 12b

None of the chemicals are listed under TSCA Section 12b.

### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

### CERCLA Hazardous Substances and corresponding RQs

CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ

### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

### SARA Codes

CAS # 67-56-1: immediate, fire.

### Section 313

This material contains Methanol (CAS# 67-56-1, > 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

### Clean Air Act:

CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

	<b>LEONID CHEMICALS PVT. LTD., BANGALORE</b>  <b>An ISO-9001:2008 Certified Company</b>  <b>Quality Assurance Department</b>	(CODE) DOCUMENT : WI  (CODE) SECTION : WI/SM  (DATE) : 01.04.2011	  Issue : 02  Rev.: 00
<b>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</b>		<b>12   Page of 1</b>	

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 67-56-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

T F

**Risk Phrases:**

- R 11 Highly flammable.
- R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R 39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

**Safety Phrases:**

- S 16 Keep away from sources of ignition - No smoking.
- S 36/37 Wear suitable protective clothing and gloves.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 7 Keep container tightly closed.

**WGK (Water Danger/Protection)**

CAS# 67-56-1: 1

 <p><b>CHEMLABS</b> Quality Our Forte</p>	<p><b>LEONID CHEMICALS PVT. LTD., BANGALORE</b></p> <p>An ISO-9001:2008 Certified Company</p> <p>Quality Assurance Department</p>	<p>(CODE) DOCUMENT : WI (CODE) SECTION : WI/SM (DATE) : 01.04.2011</p>	 <p>Issue : 02 Rev.: 00</p>
<p>Title: MATERIAL SAFETY DATA SHEET (MSDS): METHANOL</p>		<p>13   Page of 1</p>	

**Canada - DSL/NDSL**

CAS# 67-56-1 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of B2, D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.


**Canadian Ingredient Disclosure List**

CAS# 67-56-1 is listed on the Canadian Ingredient Disclosure List.

-----  
**SECTION 16 -ADDITIONAL INFORMATION**  
-----

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Leonid Chemicals Pvt. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Leonid Chemicals Pvt. Ltd. has been advised of the possibility of such damages.



	<b>LEONID CHEMICALS PVT. LTD., BANGALORE</b> An ISO-9001:2008 Certified Company <b>Quality Assurance Department</b>	(CODE) DOCUMENT : R/QPM/8.2.4/06	
		(CODE) SECTION : M012	
Title: SPECIFICATION MANUAL - METHANOL			Issue : 02 Rev.: 00 1   Page of 1

### Specification manual - Methanol

**CH<sub>3</sub>OH**

**MW: 32.04**

**Product** : Methanol LR  
**Description** : A clear colourless liquid with a characteristic odour  
**Cat No** : M012  
**Cas No** : 67-56-1  
**Prepared Date** : 07.03.2005  
**Approved Date** : 07.03.2005

REVISION HISTORY			
Issue/Rev	Description of Change	Author	Effective Date
01/00	Initial Release	S. Paul Joshua	07.03.2005
02/00	Reviewed no changes	S. Paul Joshua	01.04.2011
Next Review Due :	02.04.2015		
To be reviewed by :	Head-QC/QA		

Sl. No.	Tests	Specification
		LR
1	Assay (GC)	Min 99%
2	Non-volatile matter	0.005%
3	Aldehydes and ketones	0.1%
4	Water	0.1%
5	Boiling range	64 - 65°C

Approved By: S.Paul Joshua, Head Quality Control and Quality Assurance