
	<b>Material Safety Data Sheet (MSDS)</b> <i>According to the Directives 91/155/CEE-2001/58/CE-ISO 11014-1</i>	Page: 1 of 9 Revision Number: 1
	Product Name:  <b>Methanol</b>	 Reactivity Flammability Health

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/ UNDERTAKING



<b>Identification of the substance or preparation:</b>	<b>Methanol</b>
<b>CAS Number:</b>	<b>67-56-1</b>
<b>Synonyms:</b>	<b>Methyl alcohol , methyl hydrate , wood spirit , methyl hydroxide</b>
<b>Manufacturer subcontractor:</b>	<b>None</b>
<b>Association/Organization:</b>	<b>None</b>
<b>Use of the substance/Preparation:</b>	<b>Feed stock for many end products such as Formaldehyde and Acetic acid , solvent ,many kinds of fuel etc.</b>

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

<b>Hazardous substances:</b>	<b>Methanol</b>
<b>Hazardous label(s):</b>	<b>6 (toxics)</b>
<b>Toxicological characteristics:</b>	<b>Toxic</b>
<b>Classified as:</b>	<b>Hazardous according to NOHSC criteria Dangerous good by the criteria of the ADG code</b>
<b>Other component:</b>	<b>None</b>

### 3. IDENTIFICATION OF HAZARDS

<b>Risk phrases:</b>	<b>R11 Highly flammable, R23/25 Toxic by inhalation and if swallowed.</b>
<b>Skin contact:</b>	<b>Will result in dryness (defatting) and moderate irritation.</b>
<b>Eye contact:</b>	<b>A moderate eye irritant.</b>
<b>If swallowed:</b>	<b>Toxic if swallowed.</b>

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**Other information:**

Risk and Safety phrases are standardized phrases for Hazardous Substances. Risk phrases indicate a general description of the physicochemical, environmental and health hazards of a substance. Safety phrases give information for safe storage, handling, disposing, personal protection and first aid.

**4. FIRST AID MEASURES**

**As a general rule, in case of doubt or if symptoms persist, always call a doctor. NEVER induce swallowing in an unconscious person. Eye wash facilities and water shower should be available**

**In case of exposure by inhalation:**

Leave the contaminated area.

Breathe deeply. See a doctor.

**In case of splashes or contact with eyes:**

Flush eyes (while eyelids are hold apart) with plenty of water for at least 15 minutes. Keep patient calm.


**In case of swallowing:**

**Note of physician:**

Contact a doctor or Poisons Information Centre. Doctor should watch for toxic effect which may be delayed, including chemical pneumonitis. Apply antidote treatment with ethanol. Central nervous system depression, and acidosis from methanol metabolites, including formaldehyde liver function and optic nerve, and other effects should be treated symptomatically.

**In case of contact with skin:**

Remove contaminated clothing (with methanol) and flush affected area with water. See doctor if irritation develops. Wash contaminated clothing before reuse.

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## 5. FIRE FIGHTING MEASURES

Hazchem Code:



**2WE. Highly flammable.**  
 Auto-ignition temperature: 385°C (NFPA 1978), 470°C (Kirk-Other

1981: ullmann, 1975)

LEL: 6% UEL: 36% (NFPA 1978)

Suitable extinguishing media:

Dry chemical, carbon dioxide, foam or water fog. For large fires water jet is ineffective. Use water fog to cool intact containers and nearby storage areas. Eliminate all ignition sources including cigarettes, open flame, sparks, heaters etc. at dispensing earth containers.

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

Methanol vapors may form explosive mixtures with air. Toxic gases such as carbon oxides, hydrocarbons are produced after decomposition at high temperature and combustion.

Special protective equipment for fire fighting :

Full face, positive pressure, self-contained breathing apparatus and suitable protective clothing. Do not walk through spilled products as it may be on fire and not visible.

Other information:

Flame of methanol is almost invisible in daylight. Remain upwind and notify those downwind of hazard. Concentration of greater than 25% methanol in water can be ignited.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions:



Refer to section 8

Environmental precautions:

Ventilate and clear area of all unprotected personnel. Eliminate all ignition sources.

Methods for cleaning up and disposal:

Absorb spill with sand or similar, collect and place in sealable containers for disposal

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	Product Name:  <b>Methanol</b>	 <div style="display: flex; justify-content: center; gap: 5px;"> <div style="background-color: yellow; padding: 2px;">Reactivity</div> <div style="background-color: red; padding: 2px;">Flammability</div> <div style="background-color: blue; padding: 2px;">Health</div> </div>

**Other information:**

Contact emergency services. Wear splash-proof goggles, gloves, organic vapor respirator, coveralls and boots. Prevent soil and water pollution. Plug the leak. Collect the spilled methanol using explosion proof pumps, or dilute with water to reduce fire danger.

**7. HANDLING AND STORAGE**

The regulations relating to storage premises apply to workshop where the product is handled :

**Handling:**

Use safe work practice to avoid eye or skin contact and inhalation. Prohibit smoking, drinking and eating while handling methanol containers or in contaminated area. Keep containers tightly closed. Use explosion lift trucks, try to reduce evaporation. Reduce fire hazard by applying safety measures.

**Storage:**

Store in cool, ventilated and possibly cool area. Keep away from oxidizing agents, acids, alkalis, direct sunlight, heat or ignition and food stuff. Containers should be labeled and grounded properly. Check regularly for leaks and spills.

Anhydrous methanol is suitable for most metallic and plastic containers except made of lead and magnesium. Mild steel is recommended material for tank construction. Modern vessel containers are made of stainless steel.



Corrosion rates for several materials :  
 Cast iron, monel, Lead, Nickel: < 0.508 mm/year

High silicon iron : < 0.051 mm/year

Polyethylene : some attack

Neoprene, phenolic Resins, Polyesters, Naterial Ruber, Butyl Rubber, : satisfactory

Polyvinyl chloride ,Unplasticized : resistant



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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>Exposure limit values:</b>	ES-TWA :200 ppm / ES-STEL : 250 ppm / WES-TWA : 200 ppm / VLE – 15 min. : 1000 ppm / odour threshold : 200 ppm (irritation at 1000 ppm) /
<b>Exposure controls:</b>	<b>Do not inhale vapours. Use explosion proof ventilation systems. Methanol vapours are heavier than air and may travel some distance to an ignition source and flash back to leakage point .Keep vapour level below the recommended exposure standard.</b>
<b>Personal protective equipment:</b>	<b>PVC apron, suitable goggle or face shield and neoprene gloves are recommended. In case of inhalation risk, wear a Type A respirator or air-line respirator.</b>
<b>Eye protection:</b>	<b>Use face shield and chemical splash mask or goggles.</b>
<b>Respiratory protection:</b>	<b>Use air respirator in case of exceeding exposure limits.</b>
<b>Hand protection:</b>	<b>Use gloves made o Butyl or Nitrile rubber.</b>
<b>Skin and body protection:</b>	<b>Use protective clothing made of Butyl or Nitrile rubber</b>
<b>Health measures:</b>	<b>In confined areas, explosion proof ventilation should maintain air borne concentration below permissible exposure limits. Sampling methods : NIOSH 2000 or OSHA 91</b>
<b>Environmental exposure controls:</b>	<b>See section 13.</b>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>General information:</b>	<b>Methanol is a liquid product.</b>
<b>Appearance (at 20°C):</b>	<b>Clear liquid</b>
<b>Colour:</b>	<b>Colourless</b>
<b>Odour:</b>	<b>Slight alcohol odour</b>
<b>PH (at 20°C):</b>	<b>N.D.</b>
<b>Boiling point/range (°C):</b>	<b>64.5°C</b>
<b>Flash point (°C):</b>	<b>11(TCC)</b>
<b>Flammability:</b>	<b>Flammable</b>
<b>Auto-ignition temperature:</b>	<b>385 °C</b>
<b>Explosive properties:</b>	<b>6 – 36 vol%</b>


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<b>Oxidising properties:</b>	None
<b>Vapour pressure (at 50°C):</b>	535 hpa ( at 20 °C : 127 hpa)
<b>Density (at 20°C):</b>	0.792 (relative) / relative vapour density :1.1
<b>Solubility (at 20°C):</b>	Soluble in : ethanol, ether, acetone, chloroform
	solubility in fats: reacts with fats to form bio-diesel
<b>Viscosity (40°C):</b>	0.0006 pa.s
<b>Evaporation rate:</b>	Ratio to butyl acetate : 5.9 / to ether: 5.3
<b>Other information:</b>	Melting point : -97.8 °C

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under normal conditions.
<b>Conditions to avoid:</b>	Heat, spark and ignition sources .
<b>Material to avoid:</b>	Oxidizing agents, acids, halogens, bases and amines.
<b>Hazardous decomposition products:</b>	Carbon di & mono oxides and formaldehyde.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute toxicity (methanol):</b>	- LD <sub>50</sub> , oral, rat ( 5628 mg.kg <sup>-1</sup> ): - LD <sub>50</sub> , inhalation rat ( 85 mg/l/ 4 h): - LD <sub>50</sub> , dermal rabbit (15800 mg.kg <sup>-1</sup> ):
	
<b>Sub chronic – chronic toxicity:</b>	Not listed
<b>Sensibilization:</b>	Not listed
<b>Carcinogenicity:</b>	Not listed
<b>Reproductive effects:</b>	Not listed
<b>Human experience:</b>	Repeated exposure by inhalation or absorption: systemic poisoning, impaired vision and blindness
<b>Other information:</b>	Reported to cause birth defects in rats exposed to 2000 ppm.

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## 12. ECOLOGICAL INFORMATION

**Ecotoxicity:**

**Bio accumulative potential:**

**Mobility:**

**Persistence and degradability:**

**Other adverse effects:**

LC50 (96 h) 10800 mg/l (salmo gairdneri)  
 /EC50 (72 h) 8000 mg/l (algae)

Slightly bio accumulative.

Voc: 100%. Soluble in water

If released to atmosphere, degrades. It is expected to biodegrade in both soil and water. Rapid evaporation from dry surface occurs.

Chronic aquatic toxicity possible above 32 ppm. Not dangerous for the ozone layer.

## 13. DISPOSAL CONSIDERATIONS

**Disposal of product:**

**Disposal of packaging:**

Incineration is recommended. Waste materials should be disposed of in accordance with your municipal, state, provincial, and federal regulations.

Dispose of in accordance with relevant local regulations.

## 14. TRANSPORT INFORMATION

**Land transport:**

**ADR/RID: (transport by road and rail)**

**Packing group: II**

**Maritime transport:**

**Air transport:**

class :3

packing group : II

danger label tanks : 3+6.1

danger label packaging : 3+6.1

HAZCHEM :2WE

Class:3(flammable liquids)

HAZCHEM: 2WE

Class :3

sub risks : 3.1

packing group :II

MFAG : 19

EMS : F-E, S-D



Class : 3

sub risks :6.1

packing : II

packing instruction passenger aircraft :  
305-y305

packing instruction cargo aircraft :307

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## 15. REGULATORY INFORMATION

**Hazardous label(s):**  
**Safety phrases:**  
**Risk phrases:**

**Highly flammable , toxic**  
**S(01/02); S 07; S 16 ;S 36/37 ; S45**  
**R 11 ;R23 /24 /25 ; R39 /23 /24/25**

## 16. OTHER INFORMATION

### NOTE TO PHYSICIAN

After 40 minutes up to 72 hours, the symptoms of acute exposure to methanol, either through ingestion or breathing high airborne concentrations, could appear. Signs and symptoms are usually limited to central nerve symptom (CNS), eyes and gastrointestinal tract. Because of the initial CNS's effects of headache, vertigo, lethargy, and confusion, there may be an impression of ethanol intoxication. Blurred vision, decreased acuity and photophobia are common complains of the patients.

Treatment with ipecac or lavage is indicated in any patient presenting the symptoms within two hours of ingestion. A profound metabolic acidosis occurs in severe poisoning and serum bicarbonate is a more accurate measure of severity than serum methanol level. Treatment procedures are present at major hospitals and early collaboration with said hospitals is recommended.

Chemical data sheets available in many countries now contain codes for certain "risk phrases", shown as R23, R45 etc. These risk phrase codes have the following meanings:

- R11 Highly flammable.
- R23 Toxic by inhalation.
- R24 Toxic in contact with skin.
- R25 Toxic if swallowed.
- R39 Danger of very serious irreversible effects. Under EC legislation, data sheets available now contain codes for certain "safety phrases", shown as S1, S17 etc. These phrases are also extensively used elsewhere in the world. Safety phrase codes have the following meanings: S1 Keep locked up.
- S2 Keep out of the reach of children.
- S7 Keep container tightly closed.
  
- S16 Keep away from sources of ignition.
- S36 Wear suitable protective clothing.
- S37 Wear suitable gloves.
- S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible.)



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**The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC**

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