



## MATERIAL SAFETY DATA SHEET.

### METHANOL

#### SECTION I : CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Methyl alcohol, Absolute  
**CAS#:** 67-56-1  
**RTECS:** PC1400000  
**TSCA:** TSCA 8(b) inventory: Methyl alcohol, Absolute  
**Synonym:** Wood alcohol, Methanol; Methylol; Wood Spirit; Carbinol  
**Chemical Name:** Methanol  
**Chemical Formula:** CH<sub>3</sub>OH  
**UN No.#** 1230  
**HAZCHEM#** 2WE

#### SECTION II : HAZARD IDENTIFICATION

**Potential Acute Health Effects:**

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available.  
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.  
TERATOGENIC EFFECTS: Classified POSSIBLE for human.  
DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS)

#### SECTION III : COMPOSITION AND INFORMATION ON INGREDIENTS

**Composition:**

Name	CAS#	% by weight
METHYL ALCOHOL	67-56-1	100

#### SECTION IV : FIRST AID MEASURES

**Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available.

#### SECTION V : FIRE AND EXPLOSION DATA

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 464°C (867.2°F)

**Flash Points:** CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).

**Flammable Limits:** LOWER: 6% UPPER: 36.5%

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

**Fire Hazards in Presence of Various Substances:**

Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:**

Flammable liquid, soluble or dispersed in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use alcohol foam, water spray or fog.

**Special Remarks on Fire Hazards:**

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. **CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME.**

**Special Remarks on Explosion Hazards:**

Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Chloroform + sodium methoxide and diethyl zinc. It boils violently and explodes.

#### SECTION VI : ACCIDENTAL RELEASE MEASURE

**Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.



**Large Spill:**

Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**SECTION VIII : HANDLING AND STORAGE****Precautions:**

Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

**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 VII : EXPOSURE CONTROL /PERSONAL PROTECTION****Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

**SECTION IX : PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state and appearance:** Liquid.

**Odor:** Alcohol like. Pungent when crude

**Taste:** Not available.

**Molecular Weight:** 32.04 g/mole

**Color:** Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 64.5°C (148.1°F)

**Melting Point:** -97.8°C (-144°F)

**Critical Temperature:** 240°C (464°F)

**Specific Gravity:** 0.7915 (Water = 1)

**Vapor Pressure:** 12.3 kPa (@ 20°C)

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

**Volatility:** Not available.

**Odor Threshold:** 100 ppm

**Water/Oil Dist. Coeff.:** The product is more soluble in water; log(oil/water) = -0.8

**Ionicity (in Water):** Non-ionic.

**Dispersion Properties:** See solubility in water.

**Solubility:** Easily soluble in cold water, hot water.

## SECTION X : STABILITY AND REACTIVITY

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Heat, ignition sources, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, metals, acids.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:**

Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuric chlorite, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichloromethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## SECTION XI: TOXICOLOGICAL INFORMATION

**Routes of Entry:** Absorbed through skin. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 5628 mg/kg [Rat.]. Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit.]. Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].

**Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.  
TERATOGENIC

EFFECTS: Classified POSSIBLE for human. Causes damage to the following organs: eyes. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects (paternal and maternal effects and fetotoxicity) based on animal studies.

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health effects: May cause eye and skin irritation. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances. Inhalation: May cause respiratory tract irritation with coughing and wheezing.

May affect behavior/central nervous system/peripheral nervous system, gastrointestinal tract, respiration, lungs, and blood, and heart /cardiovascular system (bradycardia, tachycardia). May also cause metabolic acidosis and severed visual effects which may include reduced reactivity/and or increased sensitivity to light, blurred, double/and or snowy vision, and blindness.

Ingestion: May be harmful and affect eyes (cause significant visual disturbances including blindness) if swallowed. May cause gastrointestinal tract irritation with abdominal pain, fatigue, nausea, vomiting, and diarrhea

## SECTION XII: ECOLOGICAL INFORMATION

**Ecotoxicity:** Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow].

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may



arise.

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

**Special Remarks on the Products of Biodegradation:**

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bio concentration are not significant fate processes. The half-life of methanol in surface water ranges from 24 hrs. to 168 hrs.

Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photo chemically produced hydroxyl radicals and has an estimated half-life of 17.8 days.

Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO<sub>2</sub> in polluted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photo oxidation half-life in air.

**SECTION XIII : DISPOSAL CONSIDERATION**

Waste must be disposed of in accordance with state and local environmental control regulations. .

**SECTION XIV : TRANSPORT INFORMATION**

**DOT Classification:** CLASS 3: Flammable liquid.

**Identification :** Methyl alcohol UN No: 1230 PG: II

**Special Provisions for Transport:** Not available.

**SECTION XV : REGULATORY INFORMATION**

**HMIS**

Health Hazard: 1

Fire Hazard: 3

Reactivity: 0

Personal Protection: H

Health Hazard	1
Fire Hazard	3
Physical Hazard	0
Personal Protection	H

**NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A):**

(Estimated)

Health : 1

Flammability: 3

Reactivity: 0

Specific Hazard:



Hazardous Right to Know : Methyl alcohol, Absolute TSCA 8(b) inventory: Methyl alcohol, Absolute SARA 313 toxic chemical notification and release reporting: Methyl alcohol, Absolute CERCLA: Hazardous substances.: Methyl alcohol, Absolute: 5000

lbs. (2268 kg)

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**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).

**DSCL (EEC):**

R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. S7- Keep container tightly closed. S16- Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek

medical advice immediately (show the label where possible).

## Globally Harmonized System (GHS)

### GHS pictogram



**Signal word : DANGER**

### Hazard Statements

H226 : Flammable liquid and vapor  
H301 : Toxic if swallowed  
H311 : Toxic in contact with skin  
H318 : Causes serious eye damage  
H331 : Toxic if Inhaled.  
H351 : Suspected of causing cancer.  
H360 : May damage fertility or unborn child,

### Precautionary Statements

P102: Keep out of reach of children.  
P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P210 : Keep away from heat/sparks/open flame/hot surfaces. -No smoking.  
P233: Keep containers tightly closed.  
P240: Ground/Bond Container and receiving equipment.  
P241: Use explosion proof electrical/lighting/ventilating equipment.  
P242: Use only non-sparking tools.  
P243: Take precautionary measures against static discharge.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P305+P351+P358: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P333+ P313: If skin irritation or rash occurs: Get medical advice /attention.  
P370+P378: In case of fire use Water spray/foam/DCP for extinction.  
P403 +P235: Store in well ventilated place. Keep cool  
P405: Store locked up.  
P501 : Dispose of contents/container in accordance with local/regional/national International regulation.

### Supplementary information

Forms an explosive mixture with air due to its low flash point. Keep away from oxidizing agents, metals, Acids.

## SECTION XVI : OTHER INFORMATION

**References:** Not available.

**Other Special considerations:** Not available.

**Last Updated:** August 2014

**Reference:** Not available.

**Information Contact:** Technical Services Department.

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 way we shall 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.

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