

MATERIAL SAFETY DATA SHEET



1000 Tedia Way
Fairfield, Ohio 45014
USA
Email: tedia@tedia.com
Web: www.tedia.com

24-Hour Emergency Number (CHEMTREC)
USA: 800-424-9300
International: 703-527-3887

All non-emergency numbers should be directed
to Customer Service at 800-PURITY1

METHYL ALCOHOL

MSDS No. M0144

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Methyl Alcohol

Product Catalog Number(s): MA1921, MB1920, ME1925, ME1926, MG2825, MH3887, MH3888, MP1923, MP1924, MR1068, MR1268, MR1270, MR1271, MR1272, MR1273, MR1274, MR1927, MR2565, MS1069, MS1922, MS3350

Synonyms: Methanol, Wool Alcohol, Carbinol

Chemical Formula: CH₃OH

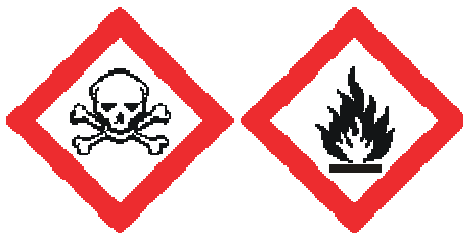
Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS No</u>	<u>Percent</u>	<u>Hazardous</u>
Methyl Alcohol	67-56-1	>99%	Yes

3. HAZARDS IDENTIFICATION

DANGER! POISON! MAY BE FATAL OR CAUSE BLINDNESS OF SWALLOWED. MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CANNOT BE MADE NON-POISONOUS. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. HIGHLY FLAMMABLE LIQUID AND VAPOR. TARGET ORGANS: LIVER, NERVOUS SYSTEM, OPTIC NERVE.



Acute Exposure Hazards:

Inhalation Hazard: Inhalation is the most common route of exposure. Methyl alcohol is toxic and readily forms high vapor concentrations at room temperature. Toxic effects exerted upon nervous system, particularly the optic nerve. Symptoms of central nervous system overexposure may include headache, drowsiness, nausea, vomiting, blurred vision, blindness, coma, and death. Victims may show no signs of overexposure for up to 24 hours followed by metabolic acidosis and visual effects, such as reduced reactivity, over sensitivity, blurred, double or snowy vision, or blindness. Depending on exposure and promptness of medical treatment, victims may fully recover or experience permanent damage.

Ingestion Hazard: May be fatal or cause blindness if swallowed. Methanol is an aspiration hazard and cannot be made non-poisonous. May cause gastrointestinal irritation with nausea, vomiting, and diarrhea. May cause system toxicity with acidosis. May cause central nervous system depression with excitement followed by headache, drowsiness, nausea, and vomiting. Advanced stages may cause collapse, unconsciousness, coma, and possible death. May cause cardiopulmonary system effects.

Skin Contact Hazard: Methyl alcohol is a mild skin irritant that may cause skin to become dry and cracked. Prolonged

contact can cause defatting or dermatitis. Skin absorption can occur with symptoms similar to inhalation exposure.

Eye Contact Hazard: May cause painful sensitization to light. Mild to moderate eye irritant. Continued exposure may cause eye lesions. Inhalation, ingestion, or absorption of methyl alcohol can cause reduced vision, including blindness.

Chronic Exposure Hazards: Chronic exposure to methyl alcohol may cause symptoms similar to acute exposure. Methyl alcohol is eliminated from the body very slowly and should be regarded as a cumulative poison. Marked impairment of vision and enlargement of the liver has been reported. Repeated or prolonged exposure may cause dermatitis and defatting of skin. Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance. Methyl alcohol has produced fetotoxicity in rats and teratogenicity in mice exposed by inhalations to high concentrations that did not produce significant maternal toxicity.

4. FIRST-AID MEASURES

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

Ingestion: Get medical help immediately. Do not induce vomiting unless directed by medical personnel. If vomiting occurs naturally, have victim lean forward. Never give anything by mouth to an unconscious person.

Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

Notes to Physician: Effects may be delayed. Ethanol may inhibit methyl alcohol metabolism.

5. FIRE FIGHTING MEASURES

Flammability: Highly flammable liquid and vapor (GHS Category 2)

Auto-ignition Temperature: 455° C (851° F)

Flash Point: 12° C (53.6° F)

Flammable Limits: Lower Limit – 6.0 vol %, Upper Limit – 31.0 vol %

Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (formaldehyde, carbon monoxide, carbon, dioxide).

Specific Fire Hazards: As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Methyl alcohol is lighter than water, so water may be ineffective and spread the fire. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. 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.

Specific Explosion Hazards: None

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

National Fire Protective Association: Health - 1, Flammability - 3, Reactivity - 0

NOTE: NFPA ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

6. ACCIDENTAL RELEASE MEASURES

Use water spray to reduce vapors. Water spray may reduce vapors but still not prevent ignition in closed spaces. Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Do not use sawdust or any combustible material. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid

contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Empty containers contain product residue (liquid and vapor) and can be dangerous. Keep container tightly closed and away from heat, spark, and flame. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks, or open flames. Use with adequate ventilation. Avoid breathing vapor or mist.

Storage: Keep in a flammables area away from all sources of ignition and oxidizing materials. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Protect from moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Personal Protection: Wear chemical splash goggles. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Exposure Limits:

ACGIH – 200 ppm TWA; 250 ppm STEL; Skin – potential significant contribution to overall exposure by cutaneous route

NIOSH – 200 ppm TWA; 260 mg/m³ TWA; 6000 ppm IDLH

OSHA Final PELs – 200 ppm TWA; 260 mg/m³ TWA

OSHA Vacated PELs: 200 ppm TWA; 260 mg/m³ TWA

Eye Protection: Wear protective chemical goggles or other appropriate eye protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.

Odor: Alcohol-like, weak odor

Odor Threshold: Highly variable, reported at 10 ppm to 20,000 ppm

Taste: Not available

Molecular Formula: CH³OH

Molecular Weight: 32.04

pH: Not available.

Boiling Point: 64.7° C @ 760 mm Hg

Freezing/Melting Point: -98° C

Decomposition Temperature: Not available

Specific Gravity: 0.7910 g/cm³

Vapor Density (Air=1): 1.11

Vapor Pressure: 128 mm Hg @ 20° C.

Viscosity: 0.55 cP 20° C

Solubility: Miscible

10. STABILITY AND REACTIVITY

Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat, confined spaces.

Incompatibility With Various Substances: Oxidizing agents, reducing agents, acids, alkali metals, potassium, sodium, powdered metals (e.g. hafnium, rane nickel), acid anhydrides, acid chlorides, powdered aluminum, powdered magnesium.

Hazardous Decomposition Products: Formaldehyde, carbon monoxide, carbon, dioxide.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact

Animal Toxicity (RTECS):

Draize test, rabbit, eye: 40 mg Moderate;
Draize test, rabbit, eye: 100 mg/24 hr Moderate;
Draize test, rabbit, skin: 20 mg/24 hr Moderate;
Inhalation, rabbit: LC50 = 81000 mg/m³/14 hr;
Inhalation, rat: LC50 = 64000 ppm/4 hr;
Oral, mouse: LD50 = 7300 mg/kg;
Oral, rabbit: LD50 = 14200 mg/kg;
Oral, rat: LD50 = 5600 mg/kg;
Skin, rabbit: LD50 = 15800 mg/kg;
Skin, monkey LDLo = 393 mg/kg;

Human Toxicity (RTECS):

Inhalation, human: TCLo = 300 ppm caused visual field changes and headache;
Oral, human: LDLo = 143 mg/kg;
Oral, human: LDLo = 428 mg/kg;

Methanol is significantly less toxic to most experimental animals than to humans, because most animal species metabolize methanol differently. Non-primate species do not ordinarily show symptoms of metabolic acidosis or the visual effects that have been observed in primates and humans.

Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65

Epidemiology: Methanol – has been shown to produce fetotoxicity in the embryo of laboratory animals. Specific developmental abnormalities include cardiovascular, musculoskeletal, and urogenital systems.

Teratogenicity: No human information is available. Based on animal data, methyl alcohol is considered a potential developmental hazard. Animal studies have shown fetotoxic and teratogenic effects without maternal toxicity.

Reproductive Effects: No information is available on the reproductive or developmental effects of methanol in humans. Developmental effects have been observed in the offspring of rats and mice exposed to methanol by inhalation. These included skeletal, cardiovascular, urinary system, and central nervous system (CNS) malformations in rats and increased resorptions and skeletal and CNS malformations in mice.

Mutagenicity: Mutagenic effects have been observed in yeast, bacteria, and mammalian somatic cells.

Neurotoxicity: ACGIH cites neuropathy, vision, and central nervous system under TLV basis.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Fish: Fathead minnow: 29.4 mg/L; 96 Hr; LC50 (unspecified)
Fish: Goldfish: 250 ppm for 11 hours resulted in death;
Fish: Rainbow trout: 8000 mg/L; 48 Hr; LC50 (unspecified);
Fish: Rainbow trout: LC50 = 13-68 mg/L; 96 Hr; 12° C;
Fish: Fathead minnow: LC50 = 29,400 mg/L; 96 Hr; 25° C;
Bacteria, *Phytobacterium phosphoreum*: EC50 = 51,000-320,000 mg/L; 30 minutes;

Environmental Fate: Dangerous to aquatic life in high concentrations. Aquatic toxicity rating: TLm 96>1000 ppm. May be dangerous if enters water intakes. Methyl alcohol is expected to biodegrade very rapidly in soil and water. Will show high soil mobility and degrade in ambient atmosphere by reaction with photochemically produced hydroxyl radicals with an estimated half-life of 17.8 days. Bioconcentration factor for fish (golden ide) <10. Based on low Kow of -0.77, the BCF value for methyl alcohol can be estimated at 0.2.

Special Remarks: No information available

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements. This material is not a "P" listed waste under 40 CFR 261.33. It is a "U" listed waste (U154 – ignitable waste).

14. TRANSPORT INFORMATION

US DOT

Proper Shipping Name: Methanol

Hazard Class: 3

UN Number: UN1230

Packing Group: II

Canada TDG

Proper Shipping Name: Methanol

Hazard Class: 3

UN Number: UN1230

Packing Group: II

Additional Information: Flashpoint 11 C

International (Water, I.M.O.)

Proper Shipping Name: Methanol

Hazard Class: 3

UN Number: UN1230

Packing Group: II

International (Air, I.C.A.O.)

Proper Shipping Name: Methanol

Hazard Class: 3

UN Number: UN1230

Packing Group: II

15. REGULATORY INFORMATION

US Federal Regulations:

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

Health and Safety Reporting List: Not listed.

Chemical Test Rules: Not listed.

Section 12b: Not listed.

TSCA Significant New Use Rule: Does not have an SNUR under TSCA.

CERCLA Hazardous Substances: CAS# 67-56-1 – 5000 lb final RQ; 2270 kg final RQ

SARA Section 302: Does not have a TPQ

SARA Codes: CAS# 67-56-1 – immediate, fire

Section 313: Methyl alcohol (CAS# 67-56-1) is subject to SARA Title III Section 313 and 40 CFR 373 reporting requirements.

Clean Air Act: CAS# 67-56-1 is listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.

Clean Water Act: CAS# 67-56-1 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 67-56-1 is on the following state right-to-know lists: California, New Jersey, Pennsylvania, Minnesota, and Massachusetts

California Prop 65: California No Significant Risk Level: Not listed

Canada:

DSL/NDSL: CAS# 67-56-1 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of B2, D1B, D2B. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

Ingredient Disclosure List: CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.

DSCL (EEC):

Hazard Symbols: T; F

Risk Phrases: R11 – Highly Flammable; R23/24/25 – Toxic by inhalation, in contact with skin, and if swallowed; R39/23/24/25 – Toxic, danger of very serious irreversible effects through inhalation, in contact with skin, and if swallowed.

Safety Phrases: 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); S7 – Keep container tightly closed.

WGK (Water Danger/protection): CAS# 67-56-1: 1

16. OTHER INFORMATION

Originally Prepared: 1/1/2006

Last Revised: 1/20/2009

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

TEDIA COMPANY, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, TEDIA COMPANY, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.