

1. PRODUCT NAME: Methyl Alcohol
2. CHEMICAL NAME: Methyl Alcohol
3. SYNONYMS: Methanol, Methyl hydrate, Wood Alcohol
4. CAS NUMBER: 67-56-1
5. COMPOSITION: Methyl Alcohol (67-56-1)
100%
6. PROPERTIES: ODOR & APPEARANCE: clear, colorless, liquid with faint, but sharp and astringent odor
ODOR THRESHOLD: 160ppm - threshold varies widely between individuals; warning properties considered poor
VAPOUR PRESSURE: 96mmHg/12.8kPa (20 c)
EVAPORATION RATE (butyl Acetate=1): 4.1
VAPOR DENSITY (air=1): 1.1
BOILING RANGE: 64.6 c/149 F
FREEZING POINT: -98 c/-144 F
SPECIFIC GRAVITY: 0.793 (20/20 c)
WATER SOLUBILITY: complete
IN OTHER SOLVENTS: soluble in most organic solvents; limited solubility in aliphatic hydrocarbons
VISCOSITY: 0.6 centipoise (20 c)
PH: none – does not dissociate to yield hydrogen ions in solution
7. HAZARDS: HMIS (U.S.A.): Health – 1, Fire – 3, Reactivity - 0
MATERIAL USE: solvent, antifreeze, cleaner, reagent
8. FIRE FIGHTING INFORMATION: FLASH POINT: 11 c/52 F (closed cup)
AUTOIGNITION TEMPERATRE: 465 c/867 F
FLAMMABLE LIMITS: 6% - 36%
COMBUSTION PRODUCTS: carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments
FIREFIGHTING PRECAUTIONS: foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water - water jet may spread flames; firefighters must wear SCBA
STATIC DISCHARGE: will not accumulate a static charge
MECHANICAL IMPACT: not sensitive
CHEMICAL STABILITY: stable; will not polymerize
REACTIVE WITH: strong oxidizing agents; strong mineral acids, powdered light metals (eg: aluminium)
DECOMPOSITION PRODUCTS: apart from Hazardous Combustion Products, toxic fumes on heating
9. PERSONAL PROTECTION MEASURES: HANDS: butyl or neoprene gloves best – also check with check with supplied for their recommendation
EYES: safety glasses with side shields
VENTILATION: not required if ventilation is adequate (see TWAEV. (2) above), or use organic vapor cartridge
CLOTHING: impermeable (hands, above) apron, boots, long sleeves, if sleeving is anticipated
10. FIRST AID PROCEDURES: SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or laundered.
EYES: Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.

IN CASE OF
TRANSPORT EMERGENCY
CONTACT CHEMTREC
USA: 1-800-424-9300
INTERNATIONAL: 1-703-527-3887



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INHALATION: Remove from contaminated area promptly. **CAUTION:** Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.

INGESTION: Quick action is vital because of the rapidity of methyl alcohol absorption. If victim is conscious, give plenty of water and induce vomiting. Keep victim's head below hips to prevent inhalation of vomited material and introduce fingers into the throat. Seek medical help promptly.

NOTE TO PHYSICIAN: Methyl Alcohol's toxicity stems largely from its metabolism to formaldehyde and/or formic acid in the body. Administer ethyl alcohol as follows. Initially, give 1.5ml/kg of 50% (100 proof) ethyl alcohol as a 5% solution (beer is acceptable) – This would be equivalent to giving a 70kg person about 1 litre of beer. Continue a maintenance dose of 0.5 – 1.0 ml/kg every 2 hours (as a 5% solution) either orally or intravenously for 3-4 days to slow the metabolism of methyl alcohol (thus preventing the formation of formic acid or formaldehyde). The objective is to maintain a blood ethanol concentration of around 1-1.5 mg/litre (a state of moderate inebriation).

Acidosis is also a danger. Acidosis can be prevented by giving sodium bicarbonate as required to maintain blood pH.

11. **EXPOSURE** TWAEV ppm/mg/m³: 200/260
LIMITS: LD50 ORAL: 5630
SKIN (mg/kg): 15,800
LC50ppm INHALATION: 64,000
IDLH: 6000ppm

12. TOXICOLOGICAL EFFECTS ACUTE EXPOSURE

INFORMATION: SKIN CONTACT: drying may irritate
SKIN ABSORPTION: yes, slowly; no toxic effects anticipated by this route
EYE CONTACT: irritating vapor and liquid, permanent damage unlikely **INHALATION:** irritating vapor; headache, dizziness, drowsiness, intoxication, blurred vision
INGESTION: headache, dizziness, drowsiness, intoxication, blurred vision, possible collapse
Warning: 1. Ingestion of Methyl alcohol can cause death!
2. Sublethal doses of methyl alcohol may cause blindness, but,
3. Effects may take 3-4 days to become apparent. Treatment should begin immediately!

EFFECTS OF CHRONIC EXPOSURE

GENERAL: repeated inhalation or ingestion may damage liver and eyesight (permanently) prolonged exposure may cause skin cracking and dermatitis

SENSITISING: not a sensitizer

REPRODUCTIVE EFFECT: fetotoxic in female rodents near LD50; human reproductive toxin by RTECS criteria

SYNERGISTIC WITH: existing liver disease or hepatotoxic agents

ESTIMATED LD50: 5600mg/kg (oral, rat) 7300mg/kg (oral, mouse), 7000mg/kg (oral, monkey); 7500mg/kg (oral, dog), 14,200 (oral, rabbit), 3000mg/kg (oral, monkey*), 15,800 (skin, rabbit)

ESTIMATED LC50: 64,000ppm (inhalation, rat), 62,000ppm (inhalation, rabbit)

*Note: Very small sample size – one of 2 animals died. However, there is evidence that methanol is more toxic in humans than in most laboratory animals, so the somewhat greater toxicity seen in monkeys should be an indicator of human toxicity.

Warning: Methyl alcohol is eliminated from the body slowly, and accumulated with repeated absorption. If toxic effects are seen or even suspected, the victim should have no further exposure – even below the TWAEV – for one week.

13. **ECOLOGICAL** This product cannot accumulate in living tissue – This product is readily and rapidly biodegradable; half-life in water (anaerobic) 0.5 days, aerobic digestion variously given as 48% in 5 days to 93% in 2 days; half-life by photolysis in air is estimated as 17 days.

14. **DISPOSAL CONSIDERATIONS:** DO NOT FLUSH TO SEWER; may be incinerated in approved facility.
15. **CARCINOGENIC PROPERTIES & NOTIFICATIONS:** Not a tumorigen; not a carcinogen; humans or animals.
16. **TRANSPORT INFORMATION:** USA 49 CFR
Product identification number: UN – 1230
Shipping name: methanol
Classification: Class 3; packing group II
Label: 3 - flammable
Class: B2, D 1B, D 2A
17. **HANDLING & STORAGE:** Store in a cool dry environment, away from sources of ignition, heat and oxidizing agents. Use with adequate ventilation. Although this product is not a static accumulator, due to its low flash point, it is recommended that the drum is grounded before pouring the product. Take extreme care to avoid sparks – use non-sparking tools and explosion-proof electrical equipment nearby. Do not cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin and wash work clothes frequently. An eye bath and safety shower should be available near the workplace.
18. **ACCIDENTAL RELEASE MEASURES:** LEAK PRECAUTION: dyke to control spillage and prevent environmental contamination. Serious Fire Risk: blanket spill with foam as a precaution against accidental ignition. Take extremely care to avoid sparks – do not operate (turn on OR off) electrical appliances near spill, unless explosion proof.
HANDLING SPILL: ventilate contaminated area; recover free liquid with explosion-proof pumps; absorb residue on an inert sorbent, pick up using non-sparking plastic or aluminium shovel, & store in closed containers for disposal
19. **REGULATORY INFORMATION:** IMMEDIATELY DANGEROUS TO LIFE OR HEALTH (IDLH): 6000ppm
OSHA STANDARDS
Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 200ppm (260mg/cu m). Vacated 1989 OSHA PELTWA 200 ppm (260 mg/cu m); STEL 250 ppm (325 mg/cu m), skin designation, is still enforced in some states.
NIOSH RECOMMENDATIONS
Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 200ppm (260mg/cu m). Recommended Exposure Limit: 15 min Short-Term Exposure Limit: 250ppm (325mg/cu m) [skin].
THRESHOLD LIMIT VALUES
8 hr Time Weighted Avg (TWA): 200ppm; 15 min Short Term Exposure Limit (STEL): 250ppm. Biological Exposure Index (BEI): Determinant: methyl isobutyl ketone in urine; Sampling Time: end of shift; BEI: 15mg/l. The determinant may be present in biological specimens collected from subjects who have not been occupationally exposed, at a concentration which could affect interpretation of the result. Such background concentrations are incorporated in BEI value. The determinant is nonspecific, since it is also observed after exposure to other chemical.
OTHER OCCUPATIONAL PERMISSIBLE LEVELS
Emergency Response Planning Guidelines (ERPG): ERPG (1) 200 ppm (no more than mild, transient effects) for up to 1 hr exposure; ERPG (2) 1000 ppm (without serious, adverse effects) for up to 1 hr exposure; ERPG (3) 5000 ppm (not life threatening) up to 1 hr exposure.
ATMOSPHERIC STANDARDS
This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use



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the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Methanol is produced, as an intermediate or final product, by process units covered under this subpart. Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Methanol is included on this list.

STATE DRINKING WATER GUIDELINES

Florida 5,000 ug/l,

Minnesota 3000 ug/l,

Wisconsin 5000 ug/l

CERCLA REPORTABLE QUANTITIES

Persons in charge of vessels of facilities are required to notify the National Response Center (NRC) immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The NOR toll free number is (800) 424-8802; In the Washington D.C. metropolitan area (202) 426-2675. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV. D.3b)

RCRA REQUIREMENTS

U161; As stipulated in 40 CFR 261.33, when methanol, as a commercial chemical product or manufacturing chemical intermediate, becomes a waste, it must be managed according to Federal and/or State hazardous waste regulations. Also defined as a hazardous waste is any residue, contaminated soil, water, or other debris resulting from the cleanup of a spill, into water or on dry land, of this waste. Generators of small quantities of this waste may qualify for partial exclusion from hazardous waste regulations (40 CFR 261.5). When methanol is a spent solvent, it is classified as a hazardous waste from a nonspecific source (F003), as stated in 40 CFR 261.31, and must be managed according to State and/or Federal hazardous waste regulations

FIFRA REQUIREMENTS

Unless designated as an active ingredient in accordance with paragraph (b) or (c) of this section, this substance, when used in antimicrobial products, is considered inert, having no independent pesticidal activity. The percentage of such an ingredient shall be included on the label in the total percentage of inert ingredients. Methanol alcohol is exempted from the requirement of tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Methyl alcohol is exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to animals. Residues of methyl alcohol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest.

FDA REQUIREMENTS

Methanol alcohol is an indirect food additive for use only as a component of adhesives.