

MSDS	MATERIAL SAFETY DATA SHEET
American Recorder Technologies, Inc. 1872 Angus Avenue Simi Valley, CA 93063 Voice: 805-527-9580 M-F, PST Fax: 805-527-1433 Email: info@americanrecorder.com MODEL NUMBER & CAPACITY: CD-103A (1 ounce) DSCK-117 (0.5 ounces) DSCK-120 (0.5 ounces) DSCK-124 (0.5 ounces) DSCK-217 (0.5 ounces) DSCK-220 (0.5 ounces) DSCK-224 (0.5 ounces) OCF-0.5 (0.5 ounces)	Emergency Contact Information: PERS-ER DOMESTIC SHIPMENTS: 800 633-8253 INTERNATIONAL: (1) 801 629-0667 <p style="text-align: center;">Methyl Alcohol (Liquid) UN# 1230</p> <p style="text-align: center;">Methyl Alcohol, Methanol</p>

Section 1. Product Information

Product Name: Methanol
Product Description: Alcohol Solvent

Section 2. Composition and Information on Ingredients

Name	CAS#	Concentration*
Methyl Alcohol	67-56-1	100%

*All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

Toxicological Data on Ingredients	Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat]
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Section 3. Hazards Identification

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

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). 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), optic nerve. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

NFPA Hazard ID	Heath 1	Flammability 3	Reactivity 0
HMIS Hazard ID	Heath 2	Flammability 3	Reactivity 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Section 4. First Aid Measures

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately. For 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.
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. For serious skin contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
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.
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.

Section 5. Fire Fighting Measures

Flammable

Flammability Properties	Flash Point [Method]: Closed:12°C Open:16°C Flammable Limits (Approx volume % in air): Lower: 6% Upper: 36.5% Autoignition Temperature: 464°C (867.2°F) Products of Combustion: Carbon oxides (CO, CO ₂)
Appropriate Extinguishing Media	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder LARGE FIRE: Use alcohol foam, water spray or fog
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	Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open

Substances	flames and sparks, of heat.
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 6. Accidental Release Measures

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 7. 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 8. Exposure Controls / Personal Protection

Exposure Limit Values

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

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	Safety glasses; gloves; lab coat; vapor respirator.
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.

Section 9. Physical and Chemical Properties

General Information	Physical State: Liquid Color: colorless Odor: Alcohol like. Pungent when crude
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Properties	Molecular Weight: 32.04 g/mole 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 Density (Air=1): 1.11 Vapor Pressure: 12.3 kPa at 20°C pH: unknown Solubility in water: Easily soluble in cold water, hot water Odor Threshold: 100 ppm Water/Oil Dist. Coeff.: Product is more soluble in water; $\log(\text{oil/water}) = -0.8$ Ionicity (in water): non-ionic
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Section 10. Stability and Reactivity

Stability	Material is stable under normal conditions
Conditions to avoid	Avoid heat, ignition sources, incompatible material
Materials to avoid	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 chloride, 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 dichlormethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride – May attack some plastics, rubber, and coatings
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Section 11. 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 humans 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), and 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 Chronic Effects on Humans	Passes through the placenta 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 or

	<p>constipation. May affect behavior/central nervous system/peripheral nervous system (general anesthetic, dizziness, delirium, confusion, restlessness, giddiness, back pain, headache, muscle weakness, somnolence, spastic paralysis, muscle contraction, ataxia, seizures, unconsciousness, coma), brain, blood (leukocytosis), metabolism, respiration (dyspnea, apnea, hyperventilation, pulmonary edema, coughing, respiratory failure) liver, urinary system (kidneys – renal failure, hematuria), endocrine system (spleen, pancreas (pancreatitis, hyperglycemia)), cardiovascular system (tachycardia, bradycardia, cardiac failure, hypotension). May also cause metabolic acidosis.</p> <p>Narcotic</p>
Special Remarks on Chronic Potential Effects	<p>Prolonged or repeated exposure by inhalation or ingestion will have effects similar to those of acute inhalation or ingestion.</p> <p>Methanol is 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 harmful amounts.</p> <p>Prolonged or repeated skin contact may cause defatting dermatitis with dryness and cracking</p>

Section 12. Ecological Information

Ecotoxicity	Ecotoxicity in water (LC50): 29400 mg/L 96 hours [Fathead Minnow]
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	<p>Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surface water ranges from 24hrs to 168 hrs.</p> <p>Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically 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 NO₂ in polluted to form methyl nitrate.</p> <p>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.</p>

Section 13. Disposal Considerations

Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Section 14. Transport Information

Proper Shipping Name	Methyl Alcohol
Hazard Class & Division	Class 3: Flammable liquid
UN ID#	1230
Packing Group	II

Section 15. Regulatory Information

Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
CERCLA	Hazardous Substances: Methyl alcohol: 5000 lbs (2268 kg)
SARA 313	Toxic chemical notification and release reporting: Methyl Alcohol

Section 16. Other Information

N/D=Not Determined, N/A= Not Applicable
MSDS Code: M3780