

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Flammable material; avoid heat and sources of ignition. Toxic compound, do not ingest or inhale. Avoid all contact with this material. Irritating to skin, eyes, and the respiratory system.	   

Section I. Chemical Product and Company Identification

Chemical Name	Methanol		
Catalog Number	M0097	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Methyl Alcohol		
Chemical Formula	CH ₃ OH		
CAS Number	67-56-1	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Methanol	67-56-1	Min. 99.0 (GC)	ACGIH TLV-TWA 200 ppm; STEL 250 ppm (dermal).	Rat LD ₅₀ (oral) 5628mg/kg Rat LD ₅₀ (inhalation) 64000ppm/4H Rabbit LD ₅₀ (dermal) 15800mg/kg

Section III. Hazards Identification

Acute Health Effects	<p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.</p> <p>Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p>CARCINOGENIC EFFECTS : Not available.</p> <p>MUTAGENIC EFFECTS : Not available.</p> <p>TERATOGENIC EFFECTS : Not available.</p> <p>DEVELOPMENTAL TOXICITY Reproductive effects:</p> <p>Rat TCLo (inhalation) 10000 ppm/7 hours, female 7-15 days of pregnancy.</p> <p>Toxic effects:</p> <p>Effects on Embryo or Fetus - Fetotoxicity.</p> <p>Rat TCLo (inhalation) 20000 ppm/7 hours, female 1-22 days of pregnancy.</p> <p>Toxic effects:</p> <p>Specific Developmental Abnormalities - Musculoskeletal system.</p> <p>Specific Developmental Abnormalities - Cardiovascular system.</p> <p>Specific Developmental Abnormalities - Urogenital system.</p> <p>Rat TCLo (oral) 35295 mg/kg, female 1-15 days of pregnancy.</p> <p>Toxic effects:</p> <p>Effects on Fertility - Female fertility index.</p> <p>Effects on Fertility - Pre-implantation mortality.</p> <p>Effects on Fertility - Post-implantation mortality.</p> <p>The substance is toxic to lungs, the nervous system, mucous membranes, digestive system, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	Wash with soap and water. Get medical attention if irritation develops.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

Section V. Fire and Explosion Data			
Flammability	Flammable.	Auto-Ignition	464°C (867.2°F)
Flash Points	11°C (51.8°F).	Flammable Limits	LOWER: 6% UPPER: 36%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	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. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Consult with local fire authorities before attempting large scale fire-fighting operations.		

Section VI. Accidental Release Measures	
Spill Cleanup Instructions	Flammable material. Toxic material. Irritating material. Keep away from heat. Mechanical exhaust required. 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. Consult federal, state, and/or local authorities 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 VII. Handling and Storage	
Handling and Storage Information	FLAMMABLE. TOXIC. IRRITANT. Keep locked up.. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, reducing agents, acids.

Section VIII. Exposure Controls/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 station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	ACGIH TLV-TWA 200 ppm; STEL 250 ppm (dermal).

Section IX. Physical and Chemical Properties			
Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Miscible with ethanol, ether, benzene, most strong organic solvents, ketones. Soluble in acetone, chloroform.
Specific Gravity	0.791 (water=1)		
Molecular Weight	32.04	Partition Coefficient	Not available.
Boiling Point	64.65 (148.4°F)	Vapor Pressure	54.7 kPa (@ 20°C)
Melting Point	-98°C (-144.4°F)	Vapor Density	1.1 (Air = 1)
Refractive Index	1.3292 @ 20°C	Volatility	Not available.
Critical Temperature	240°C (464°F)	Odor	Alcohol like.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data	
Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, reducing agents, acids, acid chlorides, acid anhydrides, alkali metals.

Section XI. Toxicological Information

RTECS Number	PC1400000
Routes of Exposure	Eye Contact. Ingestion. inhalation. Skin contact.
Toxicity Data	Rat LD ₅₀ (oral) 5628mg/kg Rat LD ₅₀ (inhalation) 64000ppm/4H Rabbit LD ₅₀ (dermal) 15800mg/kg
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. DEVELOPMENTAL TOXICITY Reproductive effects: Rat TCLo (inhalation) 10000 ppm/7 hours, female 7-15 days of pregnancy. Toxic effects: Effects on Embryo or Fetus - Fetotoxicity. Rat TCLo (inhalation) 20000 ppm/7 hours, female 1-22 days of pregnancy. Toxic effects: Specific Developmental Abnormalities - Musculoskeletal system. Specific Developmental Abnormalities - Cardiovascular system. Specific Developmental Abnormalities - Urogenital system. Rat TCLo (oral) 35295 mg/kg, female 1-15 days of pregnancy. Toxic effects: Effects on Fertility - Female fertility index. Effects on Fertility - Pre-implantation mortality. Effects on Fertility - Post-implantation mortality. The substance is toxic to lungs, the nervous system, mucous membranes, digestive system, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Methanol has been identified as a natural emission product from various plants and as a biological decomposition product of biological wastes and sewage. The largest anthropogenic source of methanol release to the environment is evaporation from solvent uses (1.1 billion lb/yr). If released to the atmosphere, methanol degrades via reaction with photochemically produced hydroxyl radicals with an approximate half-life of 17.8 days. Physical removal from air can occur via rainfall. If released to water, decomposition via biodegradation is expected to occur. If released to soil, methanol is expected to degrade via biodegradation and be susceptible to significant leaching. Relatively rapid evaporation from dry surfaces is likely to occur. Occupational and general exposure occurs through inhalation and dermal contact. Exposure also occurs through consumption of various foods and waters.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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Section XIV. Transport Information

DOT Classification	CLASS 3: Flammable liquid. CLASS 6.1: Poisonous material.
PIN Number	UN1230
Proper Shipping Name	Methanol
Packing Group (PG)	II
DOT Pictograms	 

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (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).
EINECS Number (EEC)	200-659-6
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	ENCS No. 2-0201

Section XVI. Other Information

Version 1.0
Validated on 5/29/2001.
Printed 2/28/2005.

Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

Printed 2/28/2005.