

**MATERIAL SAFETY DATA SHEET****Methanol****Section 01 - Product And Company Information**

Product Identifier Methanol

Product Use Solvent, fuel, chemical feedstock

Supplier Name..... ClearTech Industries Inc.
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Prepared By..... ClearTech Industries Inc. Technical Department
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Preparation Date..... June 21, 2013

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**Section 02 - Composition / Information on Ingredients**

Ingredients..... Methanol 99-100%

CAS Number..... Methanol 67-56-1

Synonym (s)..... Methyl hydrate, wood spirit, methyl hydroxide

Produ



Section 03 - Hazard Identification

Inhalation.....	Inhalation of high airborne concentrations can irritate mucous membranes, cause headaches, sleepiness, nausea, confusion, loss of consciousness, digestive and visual disturbances and death.
Skin Contact / Absorption.....	May cause skin irritation. May be absorbed through the skin in toxic or lethal amounts. Symptoms of exposure may include: Prolonged or repeated skin contact may cause drying, cracking or irritation. Central nervous system depression with headache, stupor, uncoordinated or strange behaviour or unconsciousness. Prolonged and or repeated skin contact with methanol soaked material has produced toxic effects including vision effects and death.
Eye Contact.....	Vapor and/or liquid causes irritation. Symptoms of exposure may include: eye irritation, burning sensation, pain, watering and/or change of vision. Eye injury which may persist for several days.
Ingestion.....	May be fatal if swallowed. A small amount of methanol (usually two or more ounces) can cause mental sluggishness, nausea and vomiting leading to severe illness, and may produce adverse effects on vision with possible blindness or death if treatment is not received.
Exposure Limits.....	ACGIH/TWA: 200ppm (skin) ACGIH/STEL: 250ppm (skin) OSHA/TWA: 200ppm (skin) OSHA/STEL: 250ppm (skin) OSHA/TWA: 260mg/m ³ (skin) OSHA/STEL: 325mg/m ³ (skin) IDHL: 6000ppm

Section 04 - First Aid Measures

Inhalation.....	Remove victim to fresh air. Give artificial respiration only if breathing has stopped. If breathing is difficult, give oxygen. Seek medical attention if difficulties persist.
Skin Contact / Absorption.....	Remove contaminated clothing. Wash affected area with soap and water. Seek medical attention if irritation occurs or persists.
Eye Contact.....	Check for and remove any contact lenses. Flush immediately with water for at least 20 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye tissue. Seek immediate medical attention.
Ingestion.....	If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical help immediately. Onset of symptoms may be delayed for 18 to 24 hours after ingestion.



Additional Information..... Acute exposure to methanol, either through ingestion or breathing high airborne concentrations can result in symptoms appearing between 40 minutes and 72 hours after exposure. Symptoms and signs are usually limited to CNS, eyes and gastrointestinal tract. Because of the initial CNS's effects of headache, vertigo, lethargy and confusion, there may be an impression of ethanol intoxication. Blurred vision, decreased acuity and photophobia are common complaints. Treatment with ipecac or lavage is indicated in any patient presenting within two hours of ingestion. A profound metabolic acidosis occurs in severe poisoning and serum bicarbonate levels are a more accurate measure of severity than serum methanol levels. Treatment protocols are available from most major hospitals and early collaboration with appropriate hospital is recommended. In cases of methanol poisoning, medical care must emphasize the control of acidosis. The use of intravenous bicarbonate has been lifesaving. Evidence shows that the treatment of methanol absorption is enhanced through the administration of ethanol, which should be given to produce a blood level of at least 0.1%. Ethanol diminishes the production of the toxic metabolites of methanol. A blood methanol level of 50mg/100mL is an indication for hemodialysis, which has improved the prognosis of methanol intoxicification. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision.

Section 05 - Fire Fighting Measures

Conditions of Flammability..... Flammable liquid

Means of Extinction..... For small fires use dry chemical, carbon dioxide or water spray. For larger fires use water spray or aqueous film forming foam with 3% or 6% foam proportioning system.

Note water may be effective in cooling larger fires but may not be effective for extinguishing as it may not cool methanol below its flash point.

Flash Point..... 11.1°C (closed cup)

Auto-ignition Temperature..... 385°C

Upper Flammable Limit 36%

Lower Flammable Limit..... 6%

Hazardous Combustible Products... Carbon monoxide, formaldehyde and carbon dioxide



Special Fire Fighting Procedures..... Wear NIOSH-approved self-contained breathing apparatus and protective clothing. Methanol burns with a clean clear flame that is almost invisible in daylight. Stay upwind. Isolate and restrict area access. Concentrations of greater than 25% methanol in water can be ignited. Use fine water spray or fog to control fire spread and cool adjacent structures or containers. Contain fire control water for later disposal.

Explosion Hazards..... Vapours may flow along surfaces to distant ignition sources and flash back. Closed containers exposed to heat may explode. Mixtures with oxidizers may explode.

Section 06 - Accidental Release Measures

Leak / Spill..... Wear appropriate personal protective equipment. Ventilate area. Stop or reduce leak if safe to do so. Absorb with an inert non-combustible material and carefully shovel the material into clean, dry container and cover. Prevent material from entering sewers, soil, waterways and groundwater.

Deactivating Materials..... Not available

Section 07 - Handling and Storage

Handling Procedures..... Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Equipment used to transfer product must be grounded to avoid static discharge.

Storage Requirements..... Store in a cool, dry, well-ventilated, flammable liquid storage area or cabinet. Keep container tightly closed, and away from incompatible materials. Storage tanks must be grounded and vented with vapor emission controls.

Section 08 - Personal Protection and Exposure Controls

Protective Equipment

Eyes..... Chemical goggles, full-face shield, or a full-face respirator is to be worn at all times when product is handled. Contact lenses should not be worn; they may contribute to severe eye injury.



- Respiratory**..... NIOSH approved supplied air respirator when airborne concentrations exceed exposure limits. Based on workplace contaminant level and working limits of the respirator, use a respirator approved by NIOSH. The following is the minimum recommended equipment for an occupational exposure level:
- For concentrations up to 2000ppm:
Use full facepiece supplied-air respirator
- For concentrations up to 5000ppm:
Use full facepiece supplied-air respirator operated in continuous mode
- For concentrations up to 6000ppm:
Use supplied air respirator with a tight-fitting facepiece operated in a continuous-flow mode; or full facepiece self-contained breathing apparatus or full facepiece supplied air respirator.
- For unknown concentrations or IDLH conditions:
Use positive pressure, full-facepiece self-contained breathing apparatus; or positive pressure, full-facepiece supplied air respirator with an auxiliary positive pressure self-contained breathing apparatus.
- Gloves**..... Impervious gloves of chemically resistant material (butyl rubber or nitrile) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Clothing**..... Body suits, aprons, and/or coveralls of chemical resistant material (preferably butyl or nitrile rubber) should be worn at all times. Wash contaminated clothing and dry thoroughly before reuse.
- Footwear**..... Footwear that is chemically resistant should be worn.
- Engineering Controls**
- Ventilation Requirements**..... Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided. Supply sufficient replacement air to make up for air removed by exhaust systems. Use general or local mechanical exhaust ventilation to control vapour and to meet TLV requirements.
- Other**..... Keep an eye wash fountain and safety shower available and in close proximity to work area.

Section 09 - Physical and Chemical Properties

- Physical State**..... Liquid
- Odor and Appearance**..... Colourless liquid with a faint alcohol-like odour



Odor Threshold.....	Not available
Specific Gravity (Water=1).....	0.791 at 20°C
Vapor Pressure (mm Hg, 20C).....	96
Vapor Density (Air=1).....	1.105 at 15°C
Evaporation Rate.....	4.1 (n-butyl acetate=1)
Boiling Point.....	64.7°C
Freeze/Melting Point.....	-97.8°C
pH.....	Not available
Water/Oil Distribution Coefficient....	Not available
Bulk Density.....	Not available
% Volatiles by Volume.....	100%
Solubility in Water.....	Soluble
Molecular Formula.....	CH ₃ OH
Molecular Weight.....	32.04

Section 10 - Stability and Reactivity

Stability.....	Stable under normal conditions. Avoid conditions of heat, flame, and other sources of ignition.
Incompatibility.....	Incompatible with oxidizing agents, acids and alkalis which may cause a violent/explosive reaction. May be corrosive to aluminum, magnesium, platinum and lead.
Hazardous Products of Decomposition..	Decompositions products are carbon monoxide, formaldehyde and carbon dioxide.
Polymerization.....	Will not occur

Section 11 - Toxicological Information

Irritancy.....	Moderate irritant
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Sensitization..... Not available

Chronic/Acute Effects..... Repeated exposure by inhalation or absorption of methanol may cause systemic poisoning, brain disorders, impaired vision and blindness. Inhalation may worsen conditions such as emphysema or bronchitis. Repeated skin contact may cause dermal irritation, dryness and cracking. Effects of sub lethal doses may be nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity. Methanol is toxic by inhalation and ingestion. Inhalation of vapors may cause cyanosis, CNS effects, lethargy, loss of consciousness and death. The effects from inhalation may be delayed. Ingestion may cause malaise, CNS effects, discomfort, and death if not treated promptly. Ingestion of methanol has resulted in adverse effects (necrosis and haemorrhaging) in the brain.

Medical conditions aggravated by exposure include: skin disorders and allergies, liver disorders and eye disease. Undocumented reports suggest that this product may form a siloxane polymer on the eyes, lungs, or other mucous membranes. Long term exposure to methanol has been associated with headaches, giddiness, conjunctivitis, insomnia and impaired vision. Dermal absorption of significant amounts of methanol resulted in death in several animal species. Toxic effects in animals exposed to methanol by inhalation include eye irritation, blindness and nasal discharge. Toxic effects observed in animals exposed to methanol by ingestion include CNS effects, gastrointestinal effects, anesthetic effects, damage to the optic nerve and acidosis.

Synergistic Materials..... Not available

Animal Toxicity Data..... LD₅₀(oral,rat): > 5000mg/kg
LD₅₀(dermal,rabbit): 20mL/kg
LC₅₀(inhalation,rat): 64,000ppm

Carcinogenicity..... Not considered to be carcinogenic as per NTP, IARC, ACGIH or OSHA list.

Reproductive Toxicity..... Methanol is reported to cause birth defects in rats exposed to 20,000 ppm.

Teratogenicity..... In experimental animals, methanol is fetotoxic, teratogenic and has produced significant behavioral abnormalities in offspring at dose levels not producing maternal toxic effects.

Mutagenicity..... Methanol has produced mutagenic effects (somatic cells) in experimental animals.

Section 12 - Ecological Information

Fish Toxicity..... LC₅₀(Pimephales promelas, 96 hrs): 28,100mg/L
LC₅₀(Lepomis macrochirus, 96 hrs): 15,400mg/L
EC₅₀(Daphnia magna, 48 hrs): 24,500mg/L



Biodegradability..... This material is expected to readily breakdown to carbon dioxide and water.

Environmental Effects..... Methanol in fresh or salty water may have serious effects on aquatic life. A study on methanol's toxic effects on sewage sludge bacteria reported little effect on digestion at 1.0 % while 0.5% methanol retarded digestion. Methanol will be broken down to carbon dioxide and water.

Section 13 - Disposal Consideration

Waste Disposal..... Secure containers (full and/or empty) with suitable hold down devices during shipment and ensure all caps, valves, or closures are secured in the closed position.

Section 14 - Transport Information

TDG Classification

Class..... 3 (6.1)

Group..... II

PIN Number..... UN 1230 (Stays the same throughout world)

Other..... Secure containers (full and/or empty) with suitable hold down devices during shipment.

Section 15 - Regulatory Information

WHMIS Classification..... B2, D1, D2

NOTE: THE PRODUCT LISTED ON THIS MSDS HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN CONTROLLED PRODUCTS REGULATIONS. THIS MSDS CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

Section 16 - Other Information

Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations.

**Attention: Receiver of the chemical goods / MSDS coordinator**

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If you have any questions or concerns please call our customer service or technical service department.

ClearTech Industries Inc. - Locations

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Calgary, AB.	5516E - 40 th St. S.E.	T2C 2A1	403-279-1096	403-236-0989
Edmonton, AB.	12020 - 142 nd Street	T5L 2G8	780-452-6000	780-452-4600
Saskatoon, SK.	North Corman Industrial Park	S7K 1V7	306-933-0177	306-933-3282
Regina, SK.	555 Henderson Drive	S42 5X2	306-721-7737	306-721-8611
Winnipeg, MB.	340 Saulteaux Crescent	R3J 3T2	204-987-9777	204-987-9770
Mississauga, ON.	7480 Bath Road	L4T 1L2	905-612-0566	905-612-0575

24 Hour Emergency Number - All Locations - 306-664-2522

