



Philippine Prosperity Chemicals, Inc.

MATERIAL SAFETY DATA SHEET

Date Reviewed :
December 02, 2009

METHANOL

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: METHANOL
Product Code: MeOH
Product Type Chemical Solvent
Company: Philippine Prosperity Chemicals, Inc.
Office Address: U1201 Picadilly Star Building
4th Ave. cor 27th St. Fort Bonifacio Global City, Taguig
Plant Addresses: (1) LMG Bulk Terminal – Pinamucan, Batangas
(2) Nagtahan Terminal Inc. – Pandacan, Manila
(3) PPCI In-land Bulk Terminal – Guiguinto, Bulacan
Contact Numbers: Tel: (632) 621-3104 to 09
Fax: (632) 659-6874
Emergency Numbers: Mobile: 0917.5845496 / 0917.5845509

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance Formal Name: Methanol
Substance Chemical Formula: CH₃OH
Common name: Methyl Alcohol
Synonyms: Methyl hydrate, wood alcohol, pyroxylic spirit, methyl hydroxide, carbinol, monohydroxy methane, wood naptha
Chemical Abstract Service Registry Number (CAS RNs): 67-56-1

3. HAZARDS IDENTIFICATION

Emergency overview: Warning! Flammable liquid! May cause skin irritation. May cause central nervous system depression. May be absorbed through the skin. May cause kidney damage. May cause respiratory and digestive tract irritation. May be fatal or cause blindness if swallowed. May cause fetal effects. Causes severe eye irritation and possible injury. Target Organs: Kidneys, central nervous system, eyes.

Human Health Hazards:

Inhalation: Sign and symptoms of acute poisoning include the following: slight irritation of the nose and eyes; head feels hot and face is flushed; excitability and talkativeness; drunken behavior; staggering and lack of coordination; headache; mental confusion and visual disturbance; tiredness.

Ingestion: Signs and symptoms of acute poisoning are gastrointestinal irritation; head feels hot and face is flushed; excitability and talkativeness; drunken behavior; staggering and lack of coordination; headache; mental confusion and visual



<i>Ingestion:</i>	disturbance; tiredness.
<i>Skin Contact:</i>	Direct skin contact with methanol may cause irritation, dermatitis, erythema and scaling. Methanol is highly volatile and will produce a feeling of cold. Alcohols remove oils from the skin, which becomes dry and eventually develops cracks or dermatitis. Methanol which can be absorbed by the skin which causes headache, fatigue and reduction of visual accuracy.
<i>Eye Contact:</i>	Methanol can seriously impair vision and may cause blindness. Immediate signs and symptoms include the following: vapors are slightly uncomfortable and splashes very irritating; irritation with painful burning or stinging sensation; watering of eyes; inflammation of the eyelids; eyes are sensitive to and painful in the light.
<i>Chronic Exposure:</i>	Methanol is slowly eliminated from the body; hence repeated exposures may result in toxic levels in the blood and tissues. Due to its slow elimination, methanol should be regarded as a cumulative poison. Though single exposures to fumes may cause no harmful effect, daily exposure may result in the accumulation of sufficient methanol in the body to cause illness.
<i>Aggravation of Pre-existing Conditions:</i>	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.

4. FIRST AID MEASURES

<i>Inhalation:</i>	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention immediately.
<i>Ingestion:</i>	Obtain medical attention immediately. Do not induce vomiting unless directed to do so by a medical personnel. Never give anything by mouth to an unconscious person.
<i>Skin Contact:</i>	Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If persistent irritation occurs, obtain medical attention. Wash clothing before reuse.
<i>Eye Contact:</i>	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. If persistent irritation occurs, obtain medical attention.

5. Fire Fighting Measure

<i>Fire:</i>	Flammable liquid! Flash point: 12 °C (53.6 °F) Auto ignition temperature: 385 °C (725 °F) Flammable limits in air based on pure MeOH % by volume: Lower Flammable Limit: 6.0; Upper Flammable Limit: 36.0
<i>Explosion:</i>	Vapor-air mixtures are explosive within flammable limits at normal temperature. Vapors can flow along surfaces to distant ignition source and flash back. Contact with strong oxidizers may cause fire. Sensitive to static discharge.



<i>Extinguishing media:</i>	Dry chemical, alcohol-resistant foam or carbon dioxide. Water spray may only be used to keep fire exposed containers cool, dilute spills to nonflammable mixtures, protect personnel attempting to stop leak and disperse vapors.
<i>Unsuitable extinguishing media:</i>	Do not use a solid stream or jet of water, since the stream will scatter and spread the fire.
<i>Special Information:</i>	All storage areas should be provided with adequate firefighting facilities and equipment. The liquid produces a vapor that forms explosive mixtures with air especially in conditions at above flash point temperatures. In the event of a fire, contact the nearest fire station. For the company's own firefighters, they should wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.
<i>Special Remarks on Fire and Explosion Hazards:</i>	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. Explosive when mixed with Chloroform + sodium methoxide and diethyl zinc. It boils violently and explodes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME

6. ACCIDENTAL CONTROL MEASURES

<i>Personal precautions:</i>	Avoid contact with skin and eyes. Ventilate area of leak or spill thoroughly. Do not breathe vapor. Remove all heat or ignition sources. Evacuate the area of all non-essential personnel. Shut off leaks, if possible without personal risk.
<i>Personal protection:</i>	Wear appropriate personal protective equipment (PPE) as specified in Section 8.
<i>Environmental precautions:</i>	Contain and recover liquid when possible with an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand or earth) and place in a chemical waste container. Do not use combustible materials such as saw dust. Use non-sparking tools and equipment. Prevent from spreading or entering into drains, ditches, rivers and other waterways by using sand, earth or other appropriate barriers.
<i>Clean-up methods - small spillage:</i>	Remove all ignition sources and ventilate area. Evacuate all non-essential personnel. Stop leak if without risk. Dilute with water and mop up, or absorb with an inert dry material and place in a sealable container. Label and seal waste containers for product recovery or appropriate disposal (see Section 13).
<i>Clean-up methods – large spillage:</i>	For large liquid spills (say more than a drum), remove all ignition sources. Evacuate all non-essential personnel. Stop leak if possible and without risk. Do not flush away residues with water. Blanket spill with alcohol resistant foam to limit evaporation or dike area to contain spill and absorb with earth, sand or other non-combustible material. Transfer to a labeled, sealable container for product recovery or proper



Clean-up methods – large spillage: disposal. Wear appropriate protective clothing to minimize contact with skin. Allow residues to evaporate or soak up with a suitable absorbent material and dispose safely and appropriately (see Section 13).

7. HANDLING AND STORAGE

Handling: Protect self against physical damage. Avoid contact with skin, eyes and clothing. Do not breathe vapor. Use only in well ventilated areas.

Handling temperature: Ambient.

Storage: Keep container tightly closed in a cool, dry and well-ventilated place. Outside or detached storage is preferred. Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Storage temperature: Ambient. Warning! At normal condition, a flammable / explosive vapor-air mixture forms.

Product transfer: Metal containers should be bonded and grounded for transfers to avoid static sparks.

Recommended materials: For containers or container linings, use mild steel or stainless steel. Refer to appropriate sources or compatibility charts if using internal coating materials.

Unsuitable materials: Anhydrous methanol is corrosive at ambient temperatures for lead, nickel, cast iron and high silicon iron. Coatings of copper (or copper alloys), zinc (including galvanized steel), or aluminum are unsuitable for storage

Other Information: Methanol is available from PPCI in bulk and in drums. Details are available upon request.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering Control Measure / Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Occupational Exposure Standards: American Conference of Governmental Industrial Hygienist (ACGIH)

Limit type: Threshold Limit Value (TLV) - the level of exposure that the typical worker can experience without an unreasonable risk of disease or injury.

Value and Unit: 200 Parts per million (ppm)



<i>Respiratory protection:</i>	Where local exhaust ventilation is not practicable, wear a full face-piece or a double cartridge respirator with organic vapor canister NPF 400. It may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face-piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.
<i>Hand protection:</i>	PVC gloves, chemical resistant gloves or nitrile gloves.
<i>Eye protection:</i>	Use chemical safety goggles with side shields or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.
<i>Body Protection:</i>	Wear impervious protective clothing such as one-piece overall, including safety shoes or boots, gloves, laboratory coat, apron or any appropriate cotton-made clothing to prevent skin contact.
<i>Specific Hygiene Measures:</i>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Appearance:</i>	Clear, colorless liquid
<i>Odor:</i>	Slight alcohol-like
<i>Initial boiling point:</i>	64.5 °C (148 °F)
<i>Freezing point:</i>	-97.6 °C (-143.68 °F)
<i>Vapor Pressure:</i>	12.8 kPa @ 20 °C
<i>Specific Gravity:</i>	0.792 @ 20 °C
<i>Solubility:</i>	Completely miscible in water
<i>Dynamic viscosity:</i>	0.54 centipoise (cP) @ 25 °C
<i>Vapor density (air=1):</i>	1.10
<i>Flash point:</i>	12 °C
<i>Auto-ignition temperature:</i>	385 °C
<i>Upper flammable limit in air:</i>	36.0 % (v/v)
<i>Lower flammable limit in air:</i>	6.0 % (v/v)
<i>Molecular weight:</i>	32.04 g/mole
<i>Evaporation rate, (NBAC = 1):</i>	4.10

10. STABILITY AND REACTIVITY



<i>Stability:</i>	Stable under normal temperature and pressure for use and storage. Hygroscopic.
<i>Conditions to avoid:</i>	Heat, flames, ignition sources and incompatibles. Slowly decomposed by moisture.
<i>Special Remarks on Reactivity</i>	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 dichloromethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous.
<i>Hazardous decomposition products:</i>	Carbon dioxide and carbon monoxide may form when heated to decomposition.

11. TOXICOLOGICAL INFORMATIONS

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Oral rat, LD₅₀</i>	5,628 mg/kg
<i>Inhalation rat, LC₅₀</i>	64,000 ppm /4 Hours
<i>Skin rabbit, LD₅₀</i>	15,800 mg/kg
<i>Eye irritation:</i>	Severe irritant. (Refer to Section 3)
<i>Skin irritation:</i>	Moderate irritant. (Refer to Section 3)
<i>Organs Affected by Long-term Exposure</i>	Repeated exposure to methanol vapor may be manifested by conjunctivitis, headache, giddiness, insomnia, gastric disturbances, and bilateral blindness.
<i>Chronic Human effects:</i>	Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects (paternal and maternal effects and fetotoxicity) base on animal studies.

12. ECOLOGICAL INFORMATION

<i>Basis for assessment:</i>	Information given is based on product data.
<i>Environmental Fate:</i>	
<i>Water:</i>	Methanol in fresh or salt 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 0.1% while 0.5% methanol retarded digestion. Methanol will be broken down into carbon dioxide and water.
<i>Soil:</i>	Highly Mobile. Should be removed readily from soils by volatilization and biodegradation.



Air: This material is expected to be readily degraded by reaction with photochemical-produced hydroxyl radicals and expected to have a half-life between 1 and 10 days. This material may be removed from the atmosphere to a moderate extent by wet deposition.

Bioaccumulation: The bioconcentration factor (BCF) for MeOH can be estimated to be <10. This indicates that it will not bioconcentrate in aquatic organisms and bioaccumulate.

Environmental Toxicity: Dangerous to aquatic life in high concentrations.

13. Disposal Considerations

Precautions: Refer to Sections 7 before handling the product or containers.

Waste disposal: Whatever MeOH cannot be saved for recovery or treating, it should be managed in an appropriate and approved waste disposal facility. Care should in any case be taken to ensure disposal is compliant with statutory or regulatory requirements and local environmental laws.

Product disposal: This product is not suitable for disposal by either landfill or via local sewers, drains, natural streams or rivers. The following advice only applies to the product as supplied. Processing, use or contamination of this product may change the waste management options.

Container disposal: Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not pressure cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. Send to drum handlers that clean, recondition or metal reclaimer. Disposal of container and unused contents must be in accordance to local regulatory requirements and environmental laws.

14. TRANSPORT INFORMATION

UN Number: 1230

Hazard Class: 3 (Flammable Liquid)

Proper shipping name: Methanol

Packing Group: II (Flash point = 12 °C)

15. OTHER INFORMATION

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