

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product Name : **Methanol**
Product Uses : Industrial solvent

Supplier : **S P K Chemical Co.,Ltd.**
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NongBon, Pravet, Bangkok 10250

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2 HAZARDS IDENTIFICATION

GHS Classification : FLAMMABLE LIQUIDS, Category 2
Acute toxicity (Oral), Category 3
Acute toxicity (Dermal), Category 3
Acute toxicity (Inhalation), Category 3
Specific target organ toxicity - single exposure Category 1
(central nervous system, visual organ)

GHS label elements

Symbol(s)



Signal word : **Danger**

GHS Hazard Statements

Physical Hazards : H225 Highly flammable liquid and vapor.
Health Hazards : H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.
H370 Causes damage to central nervous system, visual organ.
Environmental Hazards : Not classified as an environmental hazard under GHS criteria.

GHS Precautionary Statements

Prevention : P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist/vapours/spray.

Response	<p>P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/Protection/face protection.</p> <p>: P303+P361+P353 IF ON SKIN (or hair) : Remove/take off Immediately all contaminated clothing. Rinse skin with water/shower. P370+P378 In case of fire : Use appropriate media for extinction. P305+P351+P310 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor /physician. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 If eye irritation persists: Get medical advice/attention.</p>
Storage	<p>: P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P233 Keep Container tightly closed.</p>
Disposal	<p>: P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and nation regulations.</p>

3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	: Methanol
CAS No.	: 67-56-1
EINECS No.	: 200-659-6
Hazard Class (category)	: Flam. Liq (2) Act. Oral (3) Act. Dermal (3) Act. Inhalation (3) STOT SE. (1)
Hazard statement	: H225 , H301 , H311 , H331 , H370
Conc.	: 99.8%

4 FIRST AID MEASURES

General Information	: Keep victim clam. Obtain medical treatment immediately.
Inhalation	: Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin Contact	: In case of contact, remove contaminated clothing. In a shower, wash affected areas with soap and water for at least 15 minutes. Seek medical attention if irritation occurs or persists. Wash clothing before reuse. Prolonged contact with methanol may defat skin tissue, resulting in drying and cracking.
Eye Contact	: Remove contact lenses if worn. In case of contact, immediately flush eyes with plenty of clean running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Obtain medical attention.

- Ingestion** : Swallowing methanol is potentially life threatening. Onset of symptoms may be delayed for 18 to 24 hours after digestion. If conscious and medical aid is not immediately available, do not induce vomiting. In actual or suspected cases of ingestion, transport to medical facility immediately.
- Notes to physician**
- Most important symptoms /effects, acute, and delayed** : 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 the Central Nervous System (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 hospitals is recommended. Ethanol significantly decreases the toxicity of methanol because it competes for the same metabolic enzymes, and has been used to treat methanol poisoning.

5 FIRE FIGHTING MEASURES

- Specific Hazards** : Methanol vapours may burn with an invisible flame. During a fire, carbon monoxide, carbon dioxide and irritation and toxic gases such as formaldehyde may be generated. Vapours can accumulate in confined spaces resulting in a toxicity and flammability hazard. Closed containers may rupture violently and suddenly release large quantities of methanol when exposed to fire or excessive heat for a sufficient period of time. Vapours are slightly heavier than air and may travel long distances toward sources of ignition.
- Extinguishing Media** : Small fires: Dry chemical, CO₂, water spray Large fires: Water spray (see note in Unsuitable Extinguishing Media), AFFF(R) (Aqueous Film Forming Foam (alcohol resistant)) type with either a 3% or 6% foam proportioning system.
- Unsuitable Extinguishing Media** : General purpose synthetic foams or protein foams may work, but much less effectively. Water may be effective for cooling, but may not be effective for extinguishing a fire because it may not cool methanol below its flash point.
- Protective Equipment for Fire fighters** : 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. Fire fighters must wear full face, positive pressure, self-contained breathing apparatus or airline and appropriate protective fire fighting clothing as per NFPA. Note that methanol fires may require proximity suits. Take care not to walk through any spilled chemical.

Other advice : Vapours can flow along surfaces to distant ignition sources and flash back.

6 ACCIDENTAL RELEASE MEASURES

- Overview** : Flammable liquid! Can burn without a visible flame. Release can cause an immediate risk of fire and explosion. Eliminate all ignition sources, stop leak and use absorbent materials. If necessary, contain spill by diking. Fluorocarbon alcohol resistant foams may be applied to spill to diminish vapour and fire hazard. Maximize methanol recovery for recycling or re-use. Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protection and remove all sources of ignition. Notify all governmental agencies as required by law.
- Personal Precautions, Protective Equipment and Emergency Procedures** : Full face, positive pressure self-contained breathing apparatus or airline, and fire resistant protective clothing with chemical resistant splash suit must be worn. If product ignites, approach and fire fighting must be done with appropriate fire fighting clothing.
- Environmental Precaution** : Biodegrades easily in water. 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 to carbon dioxide and water.
- Remedial Measures** : Flammable liquid. Release can cause an immediate fire/explosion hazard. Eliminate all sources of ignition, stop leak and use absorbent materials. Collect liquid with explosion proof pumps. Do not walk through spill product as it may be on fire and not visible.

7 HANDLING AND STORAGE

- Precautions for safe Handling** : No smoking or open flame in storage, use or handling areas. Use explosion proof electrical equipment. Ensure proper electrical grounding procedures are in place.
- Conditions for safe Storage** : Store in totally enclosed equipment, designed to avoid ignition and human contact. Tanks must be grounded, vented, and should have vapour emission controls. Tanks must be diked as per NFPA or API Standards. A flammable mixture of methanol vapour and air is possible inside a storage tank or transportation tank, and handlers should take appropriate precautions to reduce the risk of ignition. Handlers must eliminate ignition sources or purge the tank with an inert gas such as nitrogen. All equipment must be grounded - bonded when transferring product in order to avoid static discharge from the equipment, and subsequent possible fire. Avoid storage with incompatible materials. Anhydrous methanol is non-corrosive to most metals at ambient temperatures except for lead, nickel, monel, cast iron and high silicon iron. Coatings of copper (or copper alloys), zinc (including galvanized steel), or aluminum are unsuitable for storage. These materials may be attacked slowly by the methanol. Storage tanks of welded construction are normally satisfactory.

They should be designed and built in conformance with good engineering practice for the material being stored. While plastics can be used for short term storage, they are generally not recommended for long-term storage due to deterioration effects and the subsequent risk of contamination.

Corrosion rates for several construction materials:

<0.508 mm/year	: Cast iron, monel, lead, nickel
<0.051 mm/year	: High silicon iron
Some attack	: Polyethylene
Satisfactory	: Neoprene, phenolic resins, polyesters, natural rubber, butyl rubber
Resistant	: Polyvinyl chloride, unplasticized

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m ³
Methanol	ACGIH	TLV-TWA (skin)	200 ppm	262
		TLV-STEL (skin)	250 ppm	328
		PEL-TWA (skin)	200 ppm	
		PEL—STEL(skin)	250 ppm	
		IHDL	6000 ppm	

- Individual protection Measures** : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
- Respiratory Protection** : NIOSH/OSHA recommendations for methanol concentrations in air:
- Up to 2000 ppm: supplied air respirator
 - Up to 5000 ppm: supplied air respirator operated in a continuous-flow mode.
 - Up to 6000 ppm: 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.
 - Cartridge type respirators are NOT recommended.
- Respirator selection must be done by a qualified person and be based upon a risk assessment of the work activities and exposure levels. Respirators must be fit tested and users must be clean shaven where the respirator seals to the face. Exposure must be kept at or below the applicable exposure limits and the maximum use concentration of the respirator must not be exceeded. 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.
- Hand Protection** : Where hand contact with the product may occur the use of gloves approved to relevant standards made from the following materials : rubber gloves, Nature rubber gloves, Neoprene rubber gloves, Nitrite rubber gloves.
- Eye Protection** : Chemical splash goggles
- Body Protection** : Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Colorless Liquid.
Odour	: Characteristic alcohol odour
Odour threshold	: Detection 4.2 -5960 ppm. Recognition 53 -8940 ppm.
pH	: Not applicable
Boiling point	: 64.7°C
Melting / freezing point	: Typical -97.8°C
Flash point	: Typical 11°C (Closed cup)
Density	: Typical 791 kg/m ³ at 20°C
Water solubility	: Completely miscible.
Vapour density (air=1)	: 1.105 at 15 °C

10 STABILITY AND REACTIVITY

Chemical stability	: Stable under normal conditions of use.
Conditions to Avoid	: Avoid any source of ignition. Avoid contact with heat, sparks, open flame, and static discharge.
Incompatible materials	: Avoid contact with strong oxidizers, strong mineral or organic acids, and strong bases. Contact with these materials may cause a violent or explosive reaction. May be corrosive to lead, aluminum, magnesium, and platinum. May react with metallic aluminum or magnesium and generate hydrogen gas. May attack some forms of plastic, rubber, and coatings
Decomposition products	: Formaldehyde, carbon dioxide, and carbon monoxide.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	
Acute Oral Toxicity	: Calculation was done based on rat oral LD50 value = 6,200mg/kg
Acute Dermal Toxicity	: Based on rabbits percutaneous LD50 value = 15,800mg/kg
Acute Inhalation Toxicity	: Based on rat inhalation LC50 (8 hours) value = 22,500ppm
Skin corrosion/irritation	: While there is description that the moderate irritation was seen after 24-hour exposure with the degreasing action in rabbit test, there is description that irritation was not seen in another test which applicated it on rabbit for 20 hours obstructions, and since the test data based on exposure of less than 4 hours was not obtained, it was not able to classify.
Serious eye damage/ irritation	: There is description that mild or moderate eye irritation was admitted by the test using the rabbit.
Respiratory Irritation	: Since data was insufficient for judging the existence of skin sensitization from these information, it could not be classified.
Specific target organ toxicity - single exposure	: According to the descriptions that central nervous system depression and visual organ disorder are observed by acute oral or inhalation exposure by humans.
Specific target organ toxicity - repeated exposure	: Target organs are a central nervous system and an optic organ according to the description of the central nervous system depression and the optic organ's disorders were seen in a case of long-term exposure in humans.

Respiratory or skin Sensitization	: Not a skin sensitiser.
Aspiration hazard	: Insufficient data available.
Reproductive and Developmental Toxicity	: May damage fertility or the unborn child.

12 ECOLOGICAL INFORMATION

Acute Toxicity to the aquatic environment	: It was classified as Out of Category from 24-hour LC50=900.73mg/L of Crustacea (Brine shrimp)
Chronic toxicity to the aquatic environment	: Since it was not water-insolubility and acute toxicity was low, it was classified as Out of Category.
Biodegradability	: Biodegrades easily in water and soil.

13 DISPOSAL CONSIDERATION

Material Disposal	: Recover or recycle if possible. It is responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulation. Do not dispose into the environmental, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.
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, puncture, cut, or weld uncleaned drums. Send to drum recovery or metal reclaimer.
Local Legislation	: Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14 TRANSPORT INFORMATION

Land (as per ADR classification) Regulated

Class	: 3
Packing Group	: II
Hazard Identification no.	: 33
UN No.	: 1230
Proper shipping name	: METHANOL
Environmental Hazardous	: No

IMDG

Identification number	: UN 1230
Proper shipping name	: METHANOL
Class/ Division	: 3
Packing group	: II
Marine pollutant	: No

IATA (Country variation may apply)

UN No. : 1230
Proper shipping name : Methanol
Class/ Division : 3
Packing group : II

15 REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to material.

Chemical Inventory Status

AICS : Listed.
DSL : Listed.
INV (CN) : Listed.
ENCS (JP) : Listed.
TSCA : Listed.
EINECS : Listed. 200-659-6
KECI (KR) : Listed.
PICCS (PH) : Listed.

16 Other information

MSDS Effective date : **1-Jan-19**

Uses and Restrictions : Raw material for use in the chemical industry.
Use only in industrial processes.

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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