Safety Data Sheet

According to Occupational Health and Safety (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Malaysia Regulation 2013

Methanol

Version 3.6 Release Date: 29.08.2019

SECTION 1: Identification of the hazardous chemical and of the supplier

Product identifier

Product name	:	Methanol
Synonyms	:	Methyl hydrate; Wood spirit; Methyl hydroxide
CAS-No.	:	67-56-1

Recommended use of the chemical and restrictions on use

Recommended use	:	For industrial use only. Feedstock, fuel, solvent and industrial solvent for commercial products.
Restrictions on use	:	Do not use this product other than stated in recommended use without first seeking the advice of the principal supplier.

Manufacturer or supplier's details

Headquarters

Company	:	PETRONAS Chemicals Group Berhad
Address	:	Tower 2, PETRONAS Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur Malaysia

Plant Site

Company	:	PETRONAS Chemicals Methanol Sdn Bhd
Address	:	Rancha-Rancha Industrial Estate, 87000 Federal Territory Labuan Labuan, Malaysia

Emergency telephone number	:	+6087-594 000 (PC Methanol General Line) 999 (Bomba) National Poison Centre: +604-6570099 (Mon-Fri : 8.10 am - 5.10 pm) +6012-4309499 (Mon-Fri : 5.10 pm - 10.10 pm) &(Sat, Sun & Public holiday : 8.10 am - 5.10 pm)

SECTION 2: Hazards identification

Classification of the hazardous chemical

Flammable liquids	:	Category 2
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Inhalation)	:	Category 3
Acute toxicity (Dermal)	:	Category 3
Specific target organ toxicity - single exposure	:	Category 1

Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements	:	H225 Highly flammable liquid and vapour. Toxic if swallowed, in contact with skin or if inhaled. H370 Causes damage to organs.
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 dust/ fume/ gas/ mist/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. **Response:** P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P311 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician. P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction. **Storage:** P403 + P233 + P235 Store in a well-ventilated place. Keep container tightly closed. Keep cool. P405 Store locked up. **Disposal:** P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

No information available.

SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture	:	Substance
Chemical nature	:	Methanol

Components

Chemical name	CAS-No.	Concentration (%)
Methanol	67-56-1	>= 99 -<= 100

SECTION 4: First aid measures

If inhaled	:	If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a medical doctor.
In case of skin contact	:	If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Flush eyes with water as a precaution.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting.
General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended. Consult a medical doctor.
Most important symptoms and effects, both acute and delayed	:	Central nervous system effects of headache, lethargy, confusion, blurred vision, photophobia and blindness.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	:	Alcohol-resistant foam Dry chemical Carbon dioxide (CO2)
Unsuitable extinguishing media	:	High volume water jet

Physicochemical hazards arising from the chemical

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment and precautions for fire-fighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Specific extinguishing methods	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed off in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures	:	Remove all sources of ignition.Use personal protective equipment. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Ensure adequate ventilation.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so.

		Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage

Handling

Precautions for safe handling

Advice on protection against fire and explosion	:	Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Use only explosion-proof equipment. Normal measures for preventive fire protection. Do not spray on a naked flame or any incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations. Take precautionary measures against static discharges. Avoid contact with skin and eyes. Container may be opened only under exhaust ventilation hood.

Storage

Conditions for safe storage, including any incompatibilities

Conditions for safe storage	:	Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards. No smoking.
Further information on storage stability	:	No decomposition if stored and applied as directed.

SECTION 8: Exposure controls and personal protection

Control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Methanol	67-56-1	TWA	200 ppm 262 mg/m3	MY PEL
	Further information: Skin			
		TWA	200 ppm	ACGIH
	Further information: Headache, Nausea, Dizziness, Eye damage, Substances for which there is a Biological Exposure Index or Indices (see BEI® section), Danger of cutaneous absorption			
		STEL	250 ppm	ACGIH
	Further information: Headache, Nausea, Dizziness, Eye damage, Substances for which there is a Biological Exposure Index or Indices (see BEI® section), Danger of cutaneous absorption			

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

Individual protection measures, such as personal protective equipment

Eye/face protection : Eye wash bottle with pure water.
Tightly fitting safety goggles

Skin protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hand protection
Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Wash hands before breaks and immediately after handling the product.
When using do not eat or drink.
When using do not smoke.

SECTION 9: Physical and chemical properties

Appearance : Liquid
Colour : Colourless
Odour : Alcohol-like
Odour Threshold : 4.26 ppm

pH	:	No data available
Melting point/freezing point	:	-98 °C
Boiling point/boiling range	:	65 °C
Flash point	:	9 °C Method: ASTM D 56, Tag closed cup
Evaporation rate	:	No data available
Flammability (liquids)	:	No data available
Self-ignition	:	Not applicable
Upper explosion limit / Upper flammability limit	:	50 %(V)665.000 mg/m3
Lower explosion limit / Lower flammability limit	:	6 %(V)80.000 mg/m3
Vapour pressure	:	126 hPa (20 °C)
Relative vapour density	:	1.10
Relative density	:	1.01 (20 °C)
Density	:	0.79 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	Completely miscible
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	0.3 mm2/s (100 °C)
Molecular weight	:	32.04 g/mol

SECTION 10: Stability and reactivity

Reactivity	:	Hazardous polymerisation does not occur.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Heat, sparks, flame and build-up of static electricity.
Incompatible materials	:	Strong oxidizing agents
Hazardous decomposition products	:	Fumes, smoke, carbon monoxide

SECTION 11: Toxicological information

Acute toxicity

Components:
Methanol:

Acute oral toxicity	:	Remarks: No data available
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

Skin corrosion/irritation

Components:
Methanol:

Remarks	:	No data available

Serious eye damage/eye irritation

Components:

Methanol:
Remarks : No data available

Respiratory or skin sensitisation

Components:
Methanol:
Exposure routes : Inhalation
Remarks : No data available
Exposure routes : Skin contact
Remarks : No data available

Germ cell mutagenicity

Components:
Methanol:
Germ cell mutagenicity - Assessment : No data available

Carcinogenicity

Components:
Methanol:
Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:
Methanol:
Reproductive toxicity - Assessment : Animal studies suggest toxicity to reproduction.

STOT - single exposure

Components:
Methanol:
Target Organs : Central Nervous System, Eyes, Lungs
Assessment : Affects central nervous system, toxicity to optic nerves which may lead to blindness and respiratory irritation.
4-10ml may cause permanent blindness, lethal dose : 30-200ml

STOT - repeated exposure

Components:
Methanol:
Remarks : No data available

Aspiration toxicity

Components:
Methanol:
Statement on Aspiration Tox. : No data available

SECTION 12: Ecological information

Ecotoxicity

Components:
Methanol:

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l Exposure time: 96 h Test Type: Flow-through test.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 18,260 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to algae	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 22,000 mg/l Exposure time: 96 h Test Type: static test
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 446.7 mg/l Exposure time: 28 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 208 mg/l Exposure time: 21 d
Toxicity to microorganisms	:	IC50 (Activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Remarks: Oxygen consumption, sealed serum bottles. Mimic the standard ATA. It uses cell concentrations typical of the AFNOR and ETAD standard assays. Effects of cell growth were measured similar to standard BOD test.

Persistence and degradability

Components:
Methanol:

Biodegradability	:	Result: Readily biodegradable.

Bioaccumulative potential

Components:

Methanol:

Bioaccumulation	:	Bioconcentration factor (BCF): < 10
Partition coefficient: n-octanol/water	:	log Pow: -0.77

Mobility in soil

Components:
Methanol:

Mobility	:	Medium: Soil Remarks: Very high mobility.

Other adverse effects

Components:

Methanol:

Environmental fate and pathways	:	Exist solely in vapor phase and miscible with water.

SECTION 13: Disposal information

Disposal methods

Waste from residues	:	Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

International Regulations

UNRTDG

UN number	:	UN 1230
Proper shipping name	:	METHANOL
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	3 (6.1)

IATA-DGR

UN/ID No.	:	UN 1230
Proper shipping name	:	Methanol
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	Flammable Liquids, Toxic
Packing instruction (cargo aircraft)	:	364
Packing instruction (passenger aircraft)	:	352

IMDG-Code

UN number	:	UN 1230
Proper shipping name	:	METHANOL
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	3 (6.1)

EmS Code	:	F-E, S-D
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution category	:	Y
Ship type	:	3

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15: Regulatory information

Safety, health, and environmental regulations specific for the hazardous chemical

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

The components of this product are reported in the following inventories:

CH INV	:	On the inventory, or in compliance with the inventory.
TSCA	:	On TSCA Inventory.
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory.
NZIoC	:	On the inventory, or in compliance with the inventory.
ENCS	:	On the inventory, or in compliance with the inventory.
ISHL	:	On the inventory, or in compliance with the inventory.
KECI	:	On the inventory, or in compliance with the inventory.
PICCS	:	On the inventory, or in compliance with the inventory.
IECSC	:	On the inventory, or in compliance with the inventory.

SECTION 16: Other information

SDS preparation date	:	25.09.2014
Revision Date	:	29.08.2019
Sources of key data used to compile the Safety Data Sheet	:	ICOP CCHC

Full text of other abbreviations

(Q)SAR	-	(Quantitative) Structure Activity Relationship
ACGIH	-	American Conference of Governmental Industrial Hygienists
AICS	-	Australian Inventory of Chemical Substances
ANTT	-	National Agency for Transport by Land of Brazil
ASTM	-	American Society for the Testing of Materials
bw	-	Body weight
CCHC	-	Chemicals Classification and Hazard Communication

CMR	-	Carcinogen, Mutagen or Reproductive Toxicant
CPR	-	Controlled Products Regulations
DIN	-	Standard of the German Institute for Standardisation
DSL	-	Domestic Substances List (Canada)
ECx	-	Concentration associated with x% response
ELx	-	Loading rate associated with x% response
EmS	-	Emergency Schedule
ENCS	-	Existing and New Chemical Substances (Japan)
ErCx	-	Concentration associated with x% growth rate response
ERG	-	Emergency Response Guide
GHS	-	Globally Harmonized System of Classification and Labelling of Chemicals
GLP	-	Good Laboratory Practice
IARC	-	International Agency for Research on Cancer
IATA	-	International Air Transport Association
IBC	-	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50	-	Half maximal inhibitory concentration
ICAO	-	International Civil Aviation Organization
ICOP	-	Industry Code of Practice on Chemicals Classification and Hazard Communication
IECSC	-	Inventory of Existing Chemical Substances in China
IMDG	-	International Maritime Dangerous Goods
IMO	-	International Maritime Organization
ISHL	-	Industrial Safety and Health Law (Japan)
ISO	-	International Organisation for Standardization
KECI	-	Korea Existing Chemicals Inventory
LC50	-	Lethal Concentration to 50 % of a test population
LD50	-	Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL	-	International Convention for the Prevention of Pollution from Ships
MY PEL	-	Malaysian Permissible Exposure Limit
n.o.s.	-	Not Otherwise Specified
Nch	-	Chilean Norm
NITE	-	National Institute of Technology and Evaluation
NO(A)EC	-	No Observed (Adverse) Effect Concentration
NO(A)EL	-	No Observed (Adverse) Effect Level
NOELR	-	No Observable Effect Loading Rate
NOM	-	Official Mexican Norm
NTP	-	National Toxicology Program
NZIoC	-	New Zealand Inventory of Chemicals
OCSPP	-	Office of Chemical Safety and Pollution Prevention
OECD	-	Organization for Economic Co-operation and Development
PBT	-	Persistent, Bioaccumulative and Toxic
PICCS	-	Philippines Inventory of Chemicals and Chemical Substances
REACH	-	Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
SADT	-	Self-Accelerating Decomposition Temperature
SDS	-	Safety Data Sheet
STEL	-	Short Term Exposure Limit
TCSI	-	Taiwan Chemical Substance Inventory
TDG	-	Transportation of Dangerous Goods
TSCA	-	Toxic Substances Control Act (United States)
TWA	-	Time Weighted Average
UN	-	United Nations
UNRTDG	-	United Nations Recommendations on the Transport of Dangerous Goods

UVCB	-	Unknown or Variable Composition, Complex Reaction Products and Biological Materials
vPvB	-	Very Persistent and Very Bioaccumulative
WHMIS	-	Workplace Hazardous Materials Information System
LLx	-	Loading rate associated with x% lethality effect

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