

# SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT

**Product Name:** Methyl Cyclohexane  
**Synonyms:** Cyclohexane, Cyclohexylmethane, Hexahydrotoluene  
**Chemical Formula:** C<sub>7</sub>H<sub>14</sub>  
**Recommended Use:** Solvent, Laboratory chemicals

### COMPANY IDENTIFICATION

**Supplier:** UNION PETROCHEMICAL PUBLIC COMPANY LIMITED  
728 Union House Building, Baromratchonnani Rd.,  
Bangbumru, Bangplad, Bangkok 10700  
**Supplier General Contact:** +662 881 8288

This (M)SDS is a generic document with no country specific information included.

## SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to UN GHS Criteria. Classification includes all GHS hazard classes. For hazard categories with two cut-off/concentration limits, classification was based on the higher limit.

### GHS CLASSIFICATION:

Flammable liquid: Category 2.  
Eye irritation: Category 2.  
Skin irritation: Category 2.  
Target organ toxicant (central nervous system): Category 3.  
Aspiration hazard: Category 1  
Short-term (acute) aquatic hazard: Category 1  
Long-term (chronic) aquatic hazard: Category 1

### GHS LABEL ELEMENTS:

#### Pictogram:



**Signal Word:** Danger

### Hazard Statements:

- Flammable liquid
- Liquid vapors may cause drowsiness and dizziness
- Repeated contact may result in dry skin or cracked skin
- Ingestion may result in lung problems
- Prolonged contact may cause problems of the auditory organ and the central nervous system
- NFPA. Public health: 2 Fire: 3 Reaction: 0

### POTENTIAL HEALTH EFFECTS:

**Inhalation:** Inhalation of vapors may cause irritation of the respiratory tract and of the central nervous system such as drowsiness, dizziness, headache, and nausea



**Ingestion:** May cause irritation, nausea, dyspnea, irregular pulsation, headache, dizziness, drowsiness, control (function) failure, lung congestion, convulsions, insensibility, risk of aspiration

**Skin Contact:** May cause slight irritation. Prolonged contact may result in dry skin or cracked skin.

**Eye Contact:** Slight irritation No information on severe side-effects

**Chronic Exposure:** No carcinogenicity Industrial Safety and Health Act: Not defined  
Occupational Safety & Health Administration (OSHA): No  
National Toxicology Program (NTP): No

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

This material is defined as a substance.

#### Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration*
METHYL CYCLOHEXANE	108-87-2	99-100%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### SECTION 4 FIRST AID MEASURES

#### INHALATION

Expose to fresh air. If not recovered, seek medical aid.

#### SKIN CONTACT

After remove the polluted clothes/shoes, wash the skin with soap and water

#### EYE CONTACT

Open the eyelid and wash the eye with water. Take a rest for about 30 minutes. If the eye is bloodshot and the congestion maintains continuously, receive medical treatment.

#### INGESTION

Do not induce vomiting. Immediately seek medical aid. If vomiting occurs, keep head below hips to prevent obstruction of the airway.

#### ADVICE TO PHYSICIAN

The central nervous system may be weakened. Prolonged exposure may result in dermatitis. There is the possibility of chemical pneumonia. If necessary, gastrolavage should be considered

### SECTION 5 FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA

**Fire Extinguishing Media:** Dry chemical, carbon dioxide, water, normal foam

**Extinguishing Method and Extinguisher:** Shut off all sources of fuel if possible, and use water to cool fire-exposed materials. Use water to cool fire-exposed tanks, containers, and structures. Fight horizontal tank fires from side of the tank. Wear air respirator or antigas mask in an airtight room or if needed. Use foam if exposed to heat or flame.

**Unsuitable Extinguishing Media:** N/D

#### **ACT ON SAFETY MANAGEMENT OF DANGEROUS GOODS**

The first class of petroleum of the fourth class of hazardous substance.

#### **HAZARDOUS SUBSTANCE CREATED DURING BURNING**

Toxic substances created (e.g. CO)

#### **FLAMMABILITY PROPERTIES**

**Flash Point :** -4°C

**Flammable Limits (Approximate volume % in air):** LEL: 1.2 UEL: 6.7

**Autoignition Temperature:** 250°C

### **SECTION 6**

### **ACCIDENTAL RELEASE MEASURES**

#### **PERSONAL PRECAUTIONS**

Wear protective clothing as described in Section 8 of this safety data sheet.

#### **ENVIRONMENTAL PRECAUTIONS**

Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body. Ensure that waste and contaminated materials are collected and removed from the work area as soon as possible in a suitably labelled container.

#### **SPILL CLEAN UP METHODS**

Keep combustibles away from spilled material. Absorb in vermiculite, dry sand or earth and place into containers. Wash contaminated area with water. Wash thoroughly after dealing with a spillage.

### **SECTION 7**

### **HANDLING AND STORAGE**

#### **PRECAUTIONARY MEASURES**

This material presents a fire hazard. Liquid quickly evaporates and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights, welding equipment, and electrical motors and switches. Fire hazard is greater as liquid temperature rises above 15°F. Do not get in eyes. Do not breathe vapor or fumes.

#### **GENERAL HANDLING INFORMATION**

Avoid work practices that may release volatile components in the atmosphere. Local air pollution regulations should be consulted to determine if the release of volatile components is regulated or restricted in the area in which this material is used. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

#### **GENERAL STORAGE INFORMATION**

Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or disposed of properly. DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use.

<b>SECTION 8</b>	<b>EXPOSURE CONTROLS / PERSONAL PROTECTION</b>
------------------	--

**Control parameters/Exposure limits:**

**Exposure limits/standards (Note: Exposure limits are not additive)**

Substance Name	Form	Limit/Standard			Note	Source
METHYL CYCLOHEXANE		TWA	400 ppm	1600 mg/m <sup>3</sup>		Safety and Health Act
METHYL CYCLOHEXANE		TWA	500 ppm	2000 mg/m <sup>3</sup>		OSHA
METHYL CYCLOHEXANE		TWA	400 ppm			ACGIH
METHYL CYCLOHEXANE		TWA	400 ppm	1600 mg/m <sup>3</sup>	Recommended TWA for 10 hours	NIOSH
METHYL CYCLOHEXANE		MAK	810 mg/m <sup>3</sup>	200 ml/m <sup>3</sup>		DFG

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

**APPROPRIATE ENGINEERING CONTROLS**

Install local exhaust ventilation systems. If the materials may be explosive, explosion-proof facility shall be installed for the corresponding ventilation system. Check if the exposure is proper within the exposure criteria.

**PERSONAL PROTECTION**

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** Respirator is needed if this liquid is frequently used or excessively exposed. Respirator shall be certified by Korea Occupational Safety & Health Agency.

**Eye Protection:** Wear face shield that enables wearing two safety goggles, which protect from scattering materials or harmful liquids. Install spray washing system for eyes and emergency washing system in the shower type near the work field.

**Skin and Body Protection:** Wear chemical-resistant protective clothing.

**Hand Protection:** Wear chemical-resistant gloves.

**SANITATION:** N/D

<b>SECTION 9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
------------------	---

**Note:** Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

**GENERAL INFORMATION**

**Physical State:** Liquid  
**Color:** Colorless  
**Odour:** Sweet smell  
**Odour Threshold:** N/D  
**Taste:** N/D

**IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION**

**Specific Gravity (at 15.6°C):** 0.773  
**Density:** N/D  
**Flammability (Solid, Gas):** N/D  
**Flash Point:** -4°C  
**Flammable Limits (Approximate volume % in air):** LEL: 1.2 UEL: 6.7  
**Autoignition Temperature:** 250°C

<b>Boiling Point:</b>	101°C
<b>Decomposition Temperature:</b>	N/D
<b>Vapour Density (Air = 1):</b>	3.38
<b>Vapour Pressure:</b>	43 mm Hg at 25°C
<b>Evaporation Rate (n-butyl acetate = 1):</b>	N/D
<b>pH:</b>	N/D
<b>Log Pow (n-Octanol/Water Partition Coefficient):</b>	N/D
<b>Solubility in Water:</b>	Less than 0.1wt% of water
<b>Viscosity:</b>	N/D

#### OTHER INFORMATION

<b>Freezing Point:</b>	N/D
<b>Melting Point:</b>	-126.3°C
<b>Molecular Weight:</b>	98.2 g/mole

### SECTION 10 STABILITY AND REACTIVITY

**STABILITY:** Stable in normal temperature and pressure, and for normal usage.

**CONDITIONS TO AVOID:** All sources of ignition and excessive heat, and strong oxidants.

**MATERIAL CREATED DURING DEGRADATION:** Thermal decomposition product. Toxic carbon compounds may be included (e.g. CO).

**POSSIBILITY OF HAZARDOUS MATERIAL CREATION DURING REACTION:** N/D

### SECTION 11 TOXICOLOGICAL INFORMATION

#### INFORMATION ON TOXICOLOGICAL EFFECTS

<u>Route of Exposure</u>	<u>Conclusion/Remarks</u>
<b>Inhalation</b>	
Acute Inhalation Toxicity: LC50 / rat / 15,227 ppm / 1 hour(s)	-
<b>Ingestion</b>	
Acute Oral Toxicity: LD50 / rat / >3200 mg/kg	-
<b>Skin</b>	
Acute Dermal Toxicity: LD50 / rabbit / >86,700 mg/kg	This material is irritating to the skin.
<b>Eye</b>	This material is irritating to the eyes.

#### ADDITIONAL TOXICOLOGY INFORMATION

This product contains METHYLCYCLOHEXANE:  
Repeated Dose Toxicity: 10wks / inhalation / rabbit / Doses: 0, 1160 or 3330ppm / LOAEL = 3330ppm (slight kidney and liver injury)



**SECTION 12 ECOLOGICAL INFORMATION**

The information given is based on data available for the material, the components of the material, and similar materials.

**ENVIRONMENTAL FATE**

Biodegradability: 192 hour(s) / 75 %  
This material is expected to be readily biodegradable.

**ECOTOXICITY**

This material is expected to be harmful to aquatic organisms. The toxicity of this material to aquatic organisms has not been evaluated. Consequently, this material should be kept out of sewage and drainage systems and all bodies of water.

**SECTION 13 DISPOSAL CONSIDERATIONS**

**REGULATIONS OF WASTE MANAGEMENT ACT**

Dispose the waste according to the regulations of the central and local governments.

**DISPOSAL METHOD**

Use proper container to prevent environment pollution. Dispose the substance by fire in a legal disposal system. Dispose according to the related regulation.

**CAUTION FOR DISPOSAL**

The water polluted by the product of our company should be disposed in the wastewater disposal facility permitted by the authority concerned or filled up in landfill. Follow the environment regulations. Legally dispose the substance. Waste disposal regulation in America: U.S. EPA 40 CFR 262, Hazardous Waste Number: D001

**SECTION 14 TRANSPORT INFORMATION**

The description shown may not apply to all shipping situations. Consult appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

**Shipping Descriptions per regulatory authority.**

**US D.O.T**

**Proper Shipping Name:** METHYLCYCLOHEXANE  
**Hazard Class & Division:** 3  
**UN Number:** 2296  
**Packing Group:** II

**ICAO/ IATA**

**Proper Shipping Name:** METHYLCYCLOHEXANE  
**Hazard Class & Division:** 3  
**UN Number:** 2296  
**Packing Group:** II

**IMO/ IMDG**

**Proper Shipping Name:** METHYLCYCLOHEXANE  
**Hazard Class & Division:** 3  
**UN Number:** 2296  
**Packing Group:** II



**RID/ ADR**

**Proper Shipping Name:** METHYLCYCLOHEXANE  
**Hazard Class & Division:** 3  
**UN Number:** 2296  
**Packing Group:** II

**SECTION 15**

**REGULATORY INFORMATION**

This material is considered hazardous according to the Classification of Chemicals based on Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

**The following components of this material are found on the regulatory lists indicated.**

Methylcyclohexane 3, 4, 5, 6, 45  
Toluene 1, 9, 36, 38, 48

**WHMIS CLASSIFICATION:**

Class B, Division 2: Flammable Liquids  
Class D, Division 2, Subdivision B: Toxic Material Skin or Eye Irritation

**CHEMICAL INVENTORY LISTINGS:**

**AUSTRALIA:** All the components of this material are listed on the Australian Inventory of Chemical Substances (AICS).

**CANADA:** All the components of this material are on the Canadian Domestic Substances List (DSL) or are exempt from notification.

**PEOPLE'S REPUBLIC OF CHINA:** All the components of this product are listed on the Inventory of Existing Chemical Substances in China.

**EUROPEAN UNION:** All the components of this material are in compliance with the EU Seventh Amendment Directive 92/32/EEC.

**JAPAN:** All the components of this product are on the Existing & New Chemical Substances (ENCS) inventory in Japan, or have an exemption from listing.

**KOREA:** All the components of this product are on the Existing Chemicals List (ECL) in Korea.

**PHILIPPINES:** All the components of this product are listed on the Philippine Inventory of Chemicals and Chemical Substances (PICCS).

**UNITED STATES:** All of the components of this material are on the Toxic Substances Control Act (TSCA) Chemical Inventory.

**EU RISK AND SAFETY PHRASES**

R11: Highly flammable.  
R65: Harmful: may cause lung damage if swallowed.  
R36/38: Irritating to eyes and skin.  
S2: Keep out of the reach of children.  
S9: Keep container in a well-ventilated place.  
S16: Keep away from sources of ignition - No smoking.  
S33: Take precautionary measures against static discharges.  
S51: Use only in well-ventilated areas.  
S61: Avoid release to the environment. Refer to special instructions/Safety data sheets.  
S62: If swallowed do not induce vomiting: seek medical advice immediately and show this container or label.  
S24/25: Avoid contact with skin and eyes.  
S36/37: Wear suitable protective clothing and gloves.  
EU Symbols: Xn - Harmful F - Flammable N - Environment

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.



**SECTION 16**

**OTHER INFORMATION**

**N/D = Not determined, N/A = Not applicable**

-----

The information and recommendations contained herein are, to the best of Union Petrochemical's knowledge and belief, accurate and reliable as of the date issued. You can contact Union Petrochemical to insure that this document is the most current available from Union Petrochemical. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted.

-----