

Safety Data Sheet

1. IDENTIFICATION

Product Name:	Methyl methacrylate
Other Names:	Methyl 2-methylacrylate, MMA
Recommended Use:	Raw material for many types of polymer products or chemicals.
Supplier:	Global Chemie ASCC Limited
Street Address:	88/123 Moo 2 Bangpoo Industrial Estate (North), Phraek Sa Mai, Mueang Samutprakan, Samutprakan 10280
Telephone:	+66 2324 6888
Fax:	+66 2324 6898-99
Emergency phone:	+66 2324 6888 ext.320

2. HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

This product is classified as hazardous under GHS criteria

Hazardous Classification

Acute Toxicity - Category 4 (inhalation)

Eye Corrosion/Irritation - Category 2A

Skin Corrosion/Irritation - Category 2

Inhalation Sensitization - Category 1

Skin Sensitization - Category 1

Reproductive/Developmental - Category 2

Target Organ Toxicity (Single) - Category 3 (Respiratory Sensitization, Anesthetic activity)

Target Organ Toxicity (Repeated) - Category 1 (Respiratory system, Central nervous system)

Aquatic Toxicity - Category 3 (Acute)

Flammable Liquid - Category 2 Spontaneous

Hazardous Statement

Highly Flammable liquid and vapour

GHS Pictograms



Hazard Statements

H225: Highly Flammable Liquid and Vapor.

H315: Causes skin irritation.

H317: May cause allergic skin reaction.

H319: Causes serious eye irritation.

H332: Harmful if inhaled.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

H361: Suspected of damaging fertility or the unborn child.

H372: Causes damage to organs (respiratory apparatus, nervous center) through prolonged or repeated exposure.

H402: Harmful to aquatic life.

Precautionary Statements

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.

P264: Wash hands thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P271: Use only outdoors or in a well-ventilated area.

P272: Contaminated work clothing should not be allowed out of the workplace.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection/respiratory protection as required.

P370: In case of fire, use dry chemical, carbon dioxide, foam, dry sand for extinction.

Response Statements

If on skin

P302+P361+P354: IF ON SKIN: Take off Immediately all contaminated clothing. Immediately rinse with water for several minutes.

P319: Get medical help if you feel unwell.

If inhaled

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P304+P317: IF INHALED: Get medical help.

If in eye

P351: Rinse cautiously with water for 15 minutes.

P338: Remove contact lenses, if present and easy to do. Continue rinsing.

If swallowed

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P342+P316: If experiencing respiratory symptoms: Get emergency medical help immediately.

P308+P316: IF exposed or concerned: Get emergency medical help immediately.

P391: Collect spillage.

Storage Statements

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P235: Keep cool.

P405: Store locked up.

Disposal Statements

P501: Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied.

Signal Word: Danger

3. COMPOSITION: Information on Ingredients

Chemical Ingredient	CAS No.	UN No.	Proportion (%v/v)
Methyl 2-methylacrylate	80-62-6	1247	99.9

Molecular Formula: No data available.

Molecular weight: 100.12 g/mol

4. FIRST AID MEASURES

For advice, contact Ramathibodi Poison Center (Phone: 1367) or a doctor.

Ingestion

Get immediate medical attention. Do not induce vomiting unless directed by medical personnel. Doing so will increase the potential for harm. Should be allowed to wash the mouths with water, if the person himself wishes. Do not place anything in the mouth if the person himself wishes.

Eye Contact

Eye irritation. Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. If possible, remove contact lenses before flushing the eyes. Get immediate medical attention.

Skin Contact

Itching or burning of the skin. Immediately remove contaminated clothing and shoes. Flush the skin with plenty of running water at normal or lukewarm temperatures. Get immediate medical attention if the appearance of the skin changes or if irritation persists.

Inhalation

Remove exposed person from source of exposure to fresh air. Wrap in a blanket or similar material to keep warm. Keep quiet. If breathing is weak or stops, loosen clothing, secure an open respiratory airway and start cardiopulmonary resuscitation (CPR). Avoid mouth-to-mouth resuscitation.

Most important Sign and Symptoms

In case inhalation may cause dizziness or choking and a nose or throat irritation. Contact to eye or skin may cause irritation and burning by chemicals. If swallowed, it may cause nausea, vomiting or griping.

Protection of rescuers

In case of rescue the victims, wear suitable protective equipment.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use dry chemical, foam, carbon dioxide or dry sand to extinguish fire.

Unsuitable Extinguishing Media: Do not use water in a jet. Doing so may be in danger the spread fire.

Special Hazards: Nothing special item.

Fire-fighting procedures: Keep persons not directly involved in firefighting out of the area of the fire. Use dry chemicals, a CO₂ extinguisher, dry sand etc. to extinguish a fire in its early stages. In case of large fires, deprive the fire of a source of oxygen using a foam extinguisher or by other means. Wear protective equipment during fire fighting.

6. ACCIDENTAL RELEASE MEASURES.

Person protection measures (Protective equipments): Wear protective equipment and operate from upwind during clean up works. Isolate hazard area by rope and deny entry to unnecessary of unprotected personnel.

Environment protection measures: Do not discharge the spill into sewer pipes. If the spill involves small amounts,

soak up the material with sawdust, waste cloth or sand, then collect the soaked materials into a container. For extensive spills, block the flow of liquid with earth or sand, cover the liquid surface with foam, then collect as much of the material into an empty container as possible. We recommend using spark proof tools.

Protects from secondary accidents: Promptly remove any flammable materials from the surrounding area. Prepare extinguishing media providing ignition.

7. HANDLING AND STORAGE

Precautions for safe handling

- Do not use compressed air to charge, bleed or handle the product.
- If the product is to be handled indoors, provide good ventilation using a local exhaust system or other measures. (In case evaporating at 20 °C atmosphere may be contaminated and the concentration may arrive at poisonous level quickly.)
- Keep the product away from flames, sparks, strong oxidizers and high temperature substances.
- Handle the container gently; do not overturn, drop, strike or drag.
- Wear adequate protective equipment to prevent absorption through the skin, contact with the skin or eyes or inhalation of vapors. -- See Protective equipment.

Conditions for safe storage

Keep the container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up. Keep away from heat, sparks, open flame, hot surfaces - No smoking. Protect from sunlight. Do not store in the same area with organic peroxides.

IMPORTANT: Methacrylates stored in bulk must be kept in contact with air (oxygen). So it will be desirable that the space is sealed by the oxygen concentration is about 8%. This treatment may avoid the space going in flammable limits. On the other side for avoiding polymerization, the oxygen concentration of the space needs suitable level. Monomer vapours are uninhibited and may form polymers in vent or flame arresters, resulting in blockage of vents.

Storage Temperature: Store at temperatures not exceeding 35°C. When not using immediately, it is preferable to store at temperature not exceeding 30°C.

Storage Life: Provided proper storage and handling procedures are followed, the product may be stored for up to 3 months from the date of receipt. If the product is to be placed in long-term storage (over three months), inspect the Polymerization inhibitor concentrations for significant declines from initial concentrations as necessary. If polymerization happens and a container heat up, it should be transferred quickly to well-ventilated wide area and cool down it by large quantity water.

Recommended Material: Steel drum and Steel 18L can.

8. EXPOSURE CONTROLS: PERSONAL PROTECTION

Control concentration: Not established.

Exposure Limits: ACGIH (2011 version) TLV- TWA: 50 ppm
ACGIH (2011 version) TLV- STEL: 100 ppm

Japanese Society of Occupational Health (2013 version) 2ppm, 8.3mg/m³

Engineering Controls: If the product is used indoors, seal the point of emission or install ventilating equipment or both. Installation of a safety shower, wash basin and eye bath near the handling area. Indicate the locations of these facilities clearly and prominently.

Personal Protective Equipment (PPE)

Respiratory Protection: Gas mask (to protect against organic gases), airline

respirator (in atmospheres with high product vapor concentrations), air respirator, safety goggles or protective shield.

Hand Protection: Avoid skin contact. Wear oil-resistant gloves and boots.

Eye Protection: Wear chemical safety goggles and a face shield.

Skin and body Protection: Additional protection may be necessary to prevent skin contact including use of aprons, face shield, boots or full body protection.

Occupational Health Measures: Protective Equipment should be inspected periodically. Do not eat, drink or use tobacco when handling this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Unit of Measurement	Typical Value
Appearance	-	Clear, colorless liquid
Odour	-	Ester weak odor
pH	-	No data available
Boiling point	°C	100.8°C (213.4°F) @1013hPa
Melting point	°C	-48°C (-54.4 °F)
Flash point	°C	11 °C (51.8 °F) (closed cup)
Flammability	-	No data available
Autoignition Temperature	°C	421°C (789.8°F)
Decomposition Temperature	°C	No data available
Lower/Upper Flammability Limits	%V	2.1-12.5
Density @ 20°C	g/cm³	No data available
Specific Gravity @ 20°C	-	0.944
Viscosity @ 20°C	mPa.s	0.56
Vapor pressure @ 20°C	kPa	3.73
Vapor density	kPa (Air = 1)	3.45
Evaporation Rate	(n-Butyl acetate = 1)	No data available
Water Solubility @ 20°C	%	1.72
Solubility in other solvents Partition coefficient	(n-octanol/water)	No data available
Coefficient of Thermal Expansion	per Deg C	No data available
Particle Characteristics	-	No data available
Specific heat	J/g · °C	1.89
Heat of polymerization	kJ/mol	54.4
Heat of vaporization	kJ/kg	360

Property	Unit of Measurement	Typical Value
Refractive index @ 20°C	-	1.4152
SAPT	°C	>50

The values listed are indicative of this product's physical and chemical properties. For a full product specification, please consult the Product Data Sheet.

10. STABILITY AND REACTIVITY

Stability: A polymerization inhibitor is added to the product to stabilize it under normal conditions of handling.

Hazardous Reactivity: Very flammable liquid and the vapor mixed with air generate explosive gas (explosion limit is 2.1~12.5 vol%). Polymerization reaction generates large quantity heat and quick reaction may cause explosion.

Condition to Avoid: Avoid storing far beyond the acceptable period or temperatures.

Incompatibility: Incompatible with strong acids and peroxide. (Cause of polymerization)

Hazardous Decomposition Products: No data available.

11. TOXICOLOGICAL INFORMATION

Acute Oral Toxicity: LD₅₀(Rat) 7,900 mg/kg

Acute Dermal Toxicity: LD₅₀(Rabbit) >5,000 mg/kg

Acute Inhalation Toxicity: LC₅₀(Rat) 7,093 ppm (4H) (Vapor)

Skin Corrosion/Irritation: Skin irritation test by rabbit is reported that moderate irritation is typically observed.
PII 1.5 - 2.8

Eye Corrosion/Irritation: Eye irritation test by rabbit is reported that the iris and cornea are not impaired. Grade-2 red discoloration is observed after 24hours. Light or middle irritation to eye is observed.

Respiratory Sensitization: Classified by Occupational Safety and Health Association of Japan as "Respiratory sensitizer 2nd group".

Skin Sensitization: Classified by Occupational Safety and Health Association of Japan as "Skin sensitizer 2nd group".

Mutagenicity: Germ Cell in vivo. Mutagenicity test (dominant lethal) negative.

Carcinogenicity: Classified by IARC as group 3, by ACGIH as group A4, by EPA as class E.

Reproductive and Developmental Toxicity: According to teratogenicity test by rats, the fetal toxicity (early fetal death, decrease of crown-rump length, ecchymoma) is reported at the dosage which develops the maternal toxicity (death, loss of weight, etc.)

Target Organ Effects (Single): Respiratory irritable, cataplexy, favor, nausea, dizziness, headaches and drowsiness are reported based on published human data. So, the target organ may be respiratory and central nervous system.

Target Organ Effects (Repeated): Atrophic rhinitis, pharyngitis, damage to autonomic nervous system, nervous depression, headache, dizziness, erethismus, diffuse concentration, failure of one's memory are reported based on published human data. So, the target organ may be respiratory system and central nervous system.

12. ECOLOGICAL INFORMATION

Organism Toxicity: Shellfish daphnia magna EC50/48hr 69mg/L.

Persistence/degradability: Readily biodegradable. Degradability by BOD is 94.3%.

Bioaccumulation: Bioaccumulation is not expected to be significant. log Kow= 1.38.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Follow the instructions given in Handling and Storage (Sec.7). Observe general precautions applicable to flammable toxic liquids. When incinerating the product, soak up the product using sawdust or similar materials, and burn in small increments. When disposing of the products, they should entrust to qualified waste trader. We recommend that the Waste Water, including these products, is treated by activation sludge equipments and are wasted to public space after confirming the quality. When wasting the containers used these products, wash these by water after confirming that the containers do not remain the products.

14. TRANSPORT INFORMATION

Road and Rail Transport		Marine Transport		Air Transport	
UN. Number	1247	UN. Number	1247	UN. Number	1247
Class/Item	3	Class/Item	3	Class/Item	3
Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid	Hazard Symbol	Flammable Liquid
Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED	Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED	Proper Shipping Name	METHYL METHACRYLATE MONOMER, STABILIZED
Packing Group	II	Packing Group	II	Packing Group	II
		Marine Pollutant	No		

15. REGULATORY INFORMATION

Note: The latest regulatory information should be confirmed with the importer.

16. OTHER INFORMATION

National Fire Protection Association (USA)	:	No data available.
SDS Distribution	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty of guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.
Prepared By	:	Quality Control Department / Global Chemie ASCC Limited.

Abbreviations:

No data available.

References:

- Supplier Material Safety Data Sheets.

The information sourced for the preparation of this document was correct and complete at the time of writing to the best of the writer's knowledge. The document represents the commitment to the company's responsibilities surrounding the supply of this product, undertaken in good faith. This document should be taken as a safety guide for the product and its recommended uses but is in no way an absolute authority. Please consult the relevant legislation and regulations governing the use and storage of this type of product. No warranty and guarantee are expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product for further information, please contact Global Chemie ASCC Limited.