

## MATERIAL SAFETY DATA SHEET

### RECYCLED METHYL MEHACRYLATE (MMA)

#### Section 1: Product Identification

Chemical : Recycled Methyl Methacrylate (MMA)  
Chemical Formula :  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_3$   
Company Identification : Tradeasia International Pte Limited  
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#### Section 2 : Composition and Information on Ingredients

Chemical Name : Methyl methacrylate  
Common Name : MMA  
Synonyms Name : Methyl 2-methyl-2-propenoate, Methacrylic Acid Methyl Ester  
CAS No. : 80-62-6  
UN No. : 1247  
Molecular Weight : 100.12  
Chemical Formula :  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_3$

#### Section 3 : Hazards Identification

GHS Classification : Flammable liquids : Category 2  
Respiratory or skin sensitization : Category 1  
Skin Irritation : Category 2  
Specific target organ toxicity following single exposure: Category 3

Signal word : Danger

Health Hazard : Irritating to skin and respiratory system. Harmful by inhalation and if swallowed.

Environmental Hazard : Toxic to aquatic organisms. GHS

Pictogram

:



GHS Hazard statements : H225 Flammable liquid and vapor.

: H315 Cause skin irritation.

: H317 May cause an allergic skin reaction.

: H335 May cause respiratory irritation.

GHS Precautionary statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surface and Non- 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 measure against static discharge.

P261 Avoid breathe dust/fume/gas/mist/vapors/spray.

P264 Wash thoroughly after handling.

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

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

P280 Wear protective glove/eye protection/face protection.

Response

If on skin

P303+P361+P353 Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P370+P378 In case of fire: Use manufacturer/supplier or the competent authority to specify appropriate media for extinction.

P302+P352 Wash with plenty of soap and water.

P362 Take off contaminated clothing and wash before reuse.

If in eye

P332+P313 If skin irritation persists: Get medical advice/attention.

#### If inhaled

P304+P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.

#### If swallowed

P301+P312 Call a poison center or doctor/physician if you feel unwell.

#### Storage

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

P403+P235 Store in a well-ventilated place. Keep cool.  
P405 Store locked up.

#### Disposal

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 with.

### Section 4 : First Aid Measures

Inhalation : Remove to fresh air. If the victim has difficulty breathing or tightness of the chest, give 100 oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

Skin Contact : Remove contaminated clothing. Immediately flush skin with large amounts water and follow by washing with soap if available.

Eye Contact : Immediately flush eyes with large amounts of water for at least 15 minutes. Transport to nearest medical facility for additional treatment.

Ingestion : Compel the victim to vomit it and transport to nearest medical facility for additional treatment.

## Section 5 : Fire Fighting Measures

- Suitable extinguishing media : Water spray or fog, Dry chemical powder, Alcohol-resistant foam and Carbon dioxide.
- Specific hazard arising from the chemical : May produce toxic fumes of carbon monoxide, carbon dioxide if burning.
- Special protective action for fire-fighters : Keep adjacent containers cool by spraying with water.
- Protective Equipment. : Wear full protective clothing and self-contained breathing apparatus.

## Section 6 : Accidental Release Measures

- Protective Measures : Observe all relevant local and international regulations. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see chapter 8 this Material Safety Data Sheet. Shut off leaks if possible, without personal risks. Remove all possible sources of ignition in the surrounding area. Prevent from spreading or entering drains, ditches or river by using sand, earth, or other appropriate barriers.
- Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Clean-Up Methods
- Small spillage (< 200 LT): Transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Large spillage (> 200 LT): Transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
- Other Information : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.



## Section 7 : Handling and Storage

- Handling** : Avoid contact with skin, eyes, and clothing. Do not breathe vapours. Extinguish any naked flame. Remove ignition sources. Avoid sparks. Do not smoke. The vapour is heavier than air spreads along the ground and distant ignition is possible. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Do not use compressed air for filling, discharging, or handling operations. Handle and open container with care in well-ventilated area. Do not empty into drains.
- Storage** : Must be stored in a diked (bunded) well-ventilated area, away from sunlight to prevent polymerization reaction. Keep the temperature of this material at 30°C or under. Keep away ignition sources, other sources of heat and oxidizing agents. Keep under nitrogen blanket. Inspect frequently the vent and flame arrester of storage tank, because vapour not containing inhibitor is easy to polymerized. Check frequently the concentration of the inhibitor in this product.
- Product Transfer** : Keep containers closed when not in use. Do not use compressed air for filling, discharging, or handling operations. If positive displacement pumps are used, these must be fitted with a non-integral pressure relief valve. Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Recommended Materials** : For containers, or container linings use mild steel, stainless steel.
- Additional Advice** : Containers even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers.

## Section 8 : Exposure Controls/Personal Protection

- Exposure Standard** : Occupational Exposure Limits  
TLV-TWA = 50 ppm (205 mg/m<sup>3</sup>)  
TLV-STEL = 100 ppm (410 mg/m<sup>3</sup>)  
REL-TWA = 100 ppm (410 mg/m<sup>3</sup>)  
PEL-TWA = 100 ppm (410 mg/m<sup>3</sup>) (OSHA)
- Engineering Controls Workplace** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value.

- Respiratory Protection** : Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- Hand Protection** : Butyl rubber gloves, Nature rubber gloves, Neoprene rubber gloves, Nitrile rubber gloves.
- Eye Protection** : Chemical splash goggles (chemical monogoggles).
- Other Protection** : Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant.

## Section 9 : Physical and Chemical Properties

- Appearance** : Clear liquid.
- Odour** : Specially odour.
- pH Value** : No data available.
- Boiling Point (oC)** : 100.3 °C
- Melting Point (oC)** : - 48 °C
- Flash Point** : 11 °C (Abel)
- Evaporating Rate** : 3.1 (n-Butyl Acetate = 1)
- Lower/Upper Flammability limits** : 2.1 – 12.5 %V
- Vapour Pressure (kPa)** : 5.533 kPa (40 mmHg) @ 25.5 °C
- Specific Gravity** : 0.944 – 0.948 @ 20 °C (ASTM D4052)
- Density (g/cm3)** : 0.942 – 0.946 @ 20 °C (ASTM D4052)
- Vapour Density** : 3.45 @ 20 °C (air = 1)
- Solubility in Water** : 1.25 g/100 ml. @ 20 °C (ASTM D1722)
- Auto Ignition Temperature** : 421 o C

## Section 10 : Stability and Reactivity

- Chemical Reactivity** : This product stable under normal condition by filling inhibitor.
- Stability** : This product stable under normal condition by filling inhibitor.
- Hazardous Polymerisation** : May undergo auto-polymerization
- Conditions to Avoid** : Oxidizing agents, Peroxides, Amines, Bases, Acids, Reducing agents, Halogens.
- Materials to Avoid** : Oxidizing agents, Peroxides, Amines, Bases, Acids, Reducing agents, Halogens.
- Hazardous Decomposition Products** : Thermal decomposition is highly dependent on conditions. Carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation. May form explosive peroxides.

## Section 11 : Toxicological Information

### Acute Toxicity

LD50 Acute oral toxicity : 7,872 mg/kg , (rat)

LC50 Acute Inhalation Toxicity : 78,000 mg/m<sup>3</sup>/4 hours , (rat)

Skin Irritation : Irritating to skin. Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis.

Eye Irritation : Irritating to eyes. Inflammation of the eye is characterized by redness, pain and itching.

Respiratory Irritation : Inhalation of vapours or mists may cause irritation to the respiratory system.

Carcinogenicity : This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

## Section 12 : Ecological Information

### Acute Toxicity

Fish (Bluegills, Guppies) : Low toxicity : LC50 : 232 - 368 mg/l

Algae : Low toxicity : EC50 : 170 mg/l

Mobility : Dissolves in ethanol and methanol. If product enters soil, it will highly mobile and may contaminate groundwater.

Persistence / Degradability : Readily biodegradable.

Bio-accumulation : No data available.

## Section 13: Disposal Considerations

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classifications and disposal methods in compliance with applicable regulations.

Container Disposal : Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Refer to Section 7 before handling the product or containers. Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums. Send to drum recoverer or metal reclaimer.

Local Legislation : 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 with.

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**Section 14 : Transport Information****Road/Rail Transport ADR/RID**

UN. Number : 1247  
Class/Item : 3  
Hazard Symbol : Flammable Liquid  
Proper Shipping Name : Methyl Methacrylate Monomer, Stabilized  
Packing Group : II

**Maritime Transport IMO**

UN. Number : 1247  
Class : 3  
Packing Group : II  
Hazard Symbol : Flammable Liquid  
Proper Shipping Name : Methyl Methacrylate Monomer, Stabilized  
Marine Pollutant : No

**Air Transport IATA/ICAO**

UN. Number : 1247  
Class : 3  
Packing Group : II  
Hazard Symbol : Flammable Liquid  
Proper Shipping Name : Methyl Methacrylate Monomer, Stabilized

**Section 15: Regulatory Information**

EC Label Name : Methyl Methacrylate  
EC Classification : Highly Flammable.  
EINECS (EC) : 203-603-9  
EC Annex I Number : 001-035-00-6  
RETCS : OZ5075