



## MSDS OF RECYCLED METHYL METHACRYLATE MONOMER

### 1. Product Identification

**Synonyms:** Methyl methacrylate, monomer inhibited; 2-Propenoic acid, 2-methyl-, methyl ester; Methacrylic acid, methyl ester; Methyl 2-methyl-2-propenoate

**CAS No.:** 80-62-6

**Molecular Weight:** 100.12

**Chemical Formula:** CH<sub>2</sub>:C(CH<sub>3</sub>)COOCH<sub>3</sub>

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Methyl Methacrylate	80-62-6	90 - 100%	Yes

### 3. Hazards Identification

#### Emergency Overview

**DANGER! HEATING, SUNLIGHT OR CONTACT WITH INCOMPATIBLE MATERIALS MAY CAUSE EXPLOSIVE POLYMERIZATION. FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN.**

**SAFETY-DATA** Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate

Flammability Rating: 4 - Extreme (Flammable)

Reactivity Rating: 2 - Moderate

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

#### Potential Health Effects

##### Inhalation:

Inhalation of vapors irritates the respiratory tract. Symptoms from overexposure can include coughing, chest pain, headache, drowsiness, nausea, anorexia, irritability and narcosis. Very high levels may cause pulmonary edema and death. This material has been linked to cardiac arrest and other cardiovascular problems because of its ability to lower the blood pressure.

##### Ingestion:

Harmful if swallowed. May cause diarrhea, nausea and vomiting. Swallowing produces acute systemic effects paralleling ingestion. Ingestion has been linked to liver and kidney damage.

##### Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain. May cause allergic skin reactions. May be absorbed through the skin (see chronic effects).

**Eye Contact:**

Causes irritation, redness, and pain.

**Chronic Exposure:**

Dental technicians using bare hands with methyl methacrylate molding putty developed changes in the nerve impulse transmission in the fingers. Repeated skin exposures may cause tingling or prickling sensation of the skin.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

**4. First Aid Measures****Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Note to Physician:**

After vomiting, have victim drink a mixture of 2 tablespoonfuls of activated charcoal and 8 ounces of water.

**5. Fire Fighting Measures****Fire:**

Flash point: 10C (50F) OC

Autoignition temperature: 435C (815F)

Flammable limits in air % by volume:

l<sub>el</sub>: 1.7; u<sub>el</sub>: 8.2

Flammable Liquid Contact with strong oxidizers may cause fire.

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Violent eruption of closed containers may occur when polymerization occurs. Polymerization may be caused by elevated temperature, oxidizers, peroxides, or sunlight. Vapors can flow along surfaces to distant ignition source and flash back. Sealed containers may rupture when heated. Sensitive to static discharge.

**Fire Extinguishing Media:**

Dry chemical, alcohol foam or carbon dioxide. Water may be ineffective. Material floats on water and may travel back to an ignition source and spread fire. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures. Water spray may be used to keep fire exposed containers cool.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

**6. Accidental Release Measures**

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Cover liquid with an activated carbon absorbent, and place in a chemical waste container. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.

## 7. Handling and Storage

Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Protect from direct sunlight. Regularly check the inhibitor concentration. For the inhibitor to be effective, low levels of dissolved oxygen must be present in the methyl methacrylate. Do not store under pure nitrogen or sparge with nitrogen or other oxygen-free gas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do Not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, sparks, flame, static electricity or other sources of ignition: they may explode and cause injury or death.

## 8. Exposure Controls/Personal Protection

### Airborne Exposure Limits:

Methyl Methacrylate:

-OSHA Permissible Exposure Limit (PEL): 100 ppm (TWA)

-ACGIH Threshold Limit Value (TLV): 50 ppm (TWA), 100 ppm (STEL), Sensitizer, A4 -Not Classifiable as a Human Carcinogen.

### Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details. Use explosion-proof equipment.

### Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half-face organic vapor respirator may be worn for up to ten times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece organic vapor respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc.

### Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

## 9. Physical and Chemical Properties

### Appearance:

Clear Colorless liquid.

### Odor:

Sharp odor.

### Solubility:

1.5 gm in 100 gm water.

### Specific Gravity:

0.944 @ 20C/4C

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

100C (212F)

**Melting Point:**

-48C (-54F)

**Vapor Density (Air=1):**

3.6

**Vapor Pressure (mm Hg):**

40 @ 25.5C (79F)

**Evaporation Rate (BuAc=1):**

3.1

**10. Stability and Reactivity****Stability:**

Inhibited methyl methacrylate is stable at room temperature for a limited storage period. Vapors are uninhibited and may form polymers in vents, causing stoppage. Violent eruption of closed containers may occur when polymerization occurs. Polymerization may be caused by elevated temperature, oxidizers, peroxides, or sunlight.

**Hazardous Decomposition Products:**

Carbon dioxide and carbon monoxide may form when heated to decomposition.

**Hazardous Polymerization:**

See above.

**Incompatibilities:**

Incompatible with polymerization catalysts (peroxides, persulfates) light, heat, nitric acid and other strong oxidizers, ammonia, amines, halogens and halogen compounds.

**Conditions to Avoid:**

Insufficient inhibitor, incompatibles, heat, flame and ignition sources

**11. Toxicological Information****Toxicological Data:**

Oral rat LD50: 7872 mg/kg; Inhalation rat LC50: 78,000 mg/m<sup>3</sup>/4-hour. Investigated as a tumorigen, mutagen, reproductive effector.

**Reproductive Toxicity:**

Has caused mutagenic and teratogenic effects on laboratory animals.

Ingredient	-----NTP Carcinogen-----		IARC Category
	Known	Anticipated	
Methyl Methacrylate (80-62-6 )	No	No	3

**12. Ecological Information****Environmental Fate:**

When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material may leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. When released to water, this material is expected to quickly evaporate. This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

**Environmental Toxicity:**

No information found.

**13. Disposal Considerations**

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local

disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

#### 14. Transport Information

##### Domestic (Land, D.O.T.)

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**Proper Shipping Name:** METHYL METHACRYLATE MONOMER, INHIBITED  
**Hazard Class:** 3  
**UN/NA:** UN1247  
Packing Group: II

##### International (Water, I.M.O.)

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**Proper Shipping Name:** METHYL METHACRYLATE MONOMER, INHIBITED  
**Hazard Class:** 3  
**UN/NA:** UN1247  
Packing Group: II

##### International (Air, I.C.A.O.)

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**Proper Shipping Name:** METHYL METHACRYLATE MONOMER, INHIBITED  
**Hazard Class:** 3  
**UN/NA:** UN1247  
Packing Group: II

#### 15. Regulated Identification

**Shipping Name :** Methyl methacrylate  
**Codes / Label :** Class 3, Flammable  
**Hazchem Code :** 3YE  
**Hazardous Waste ID No :** 17

#### 16. Other Information

**NFPA Ratings:** Health: 2 Flammability: 3 Reactivity: 2

**Label Hazard Warning:**

DANGER! HEATING, SUNLIGHT OR CONTACT WITH INCOMPATIBLE MATERIALS MAY CAUSE EXPLOSIVE POLYMERIZATION. FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED OR INHALED. AFFECTS CENTRAL NERVOUS SYSTEM. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

**Label Precautions:**

Avoid breathing vapor.  
Avoid contact with eyes, skin and clothing.  
Keep container closed.  
Use only with adequate ventilation.  
Wash thoroughly after handling.  
Keep away from heat, sparks and flame.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Flush skin with soap or mild detergent and water for at least 15 minutes. Wash contaminated clothing before reuse. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Disclaimer:**

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