

Material Safety Data Sheet

Methyl methacrylate

Section 1 - Chemical Product

MSDS Name: Methyl methacrylate

Synonyms: Methyl Methacrylate Monomer; Methacrylic Acid Methyl Ester; alpha-Methacrylic Acid.

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
80-62-6	Methyl methacrylate	> 99	201-297-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 50 deg F.

Danger! Corrosive. **Flammable liquid and vapor.** Sensitizer. May cause allergic respiratory reaction. May cause allergic skin reaction. May cause respiratory and digestive tract irritation. May cause severe eye and skin irritation with possible burns. May cause central nervous system depression. May form explosive peroxides. Light sensitive. Air sensitive. May cause liver and kidney damage. Heat sensitive. May cause reproductive and fetal effects.

Target Organs: Kidneys, central nervous system, liver, skin.

Potential Health Effects

Eye: Contact with eyes may cause severe irritation, and possible eye burns. May cause eye injury.

Skin: May cause severe skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

Ingestion: May cause central nervous system depression, kidney damage, and liver damage. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause allergic reaction. Exposure may cause headache, anorexia, and

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause allergic respiratory reaction. May cause respiratory tract irritation. May cause effects similar to those described for ingestion.

Chronic: Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause reproductive and fetal effects. Repeated exposure may cause tingling in the extremities and other nervous system abnormalities.

Section 4 - First Aid Measures

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

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: No specific antidote exists. Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Vapor may cause flash fire. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. May polymerize explosively when involved in a fire. Containers may explode when heated.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: 50e deg F (10.00 deg C)

Autoignition Temperature: 790 deg F (421.11 deg C)

Explosion Limits, Lower: 1.7

Upper: 8.2

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section

8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with skin and eyes. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid ingestion and inhalation. If peroxide formation is suspected, do not open or move container. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Methyl methacrylate	50 ppm TWA; 100 ppm STEL	100 ppm TWA; 410 mg/m ³ TWA 1000 ppm IDLH	100 ppm TWA; 410 mg/m ³ TWA

OSHA Vacated PELs: Methyl methacrylate: 100 ppm TWA; 410 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: colorless
Odor: sweetish odor - sharp odor
pH: Not available.
Vapor Pressure: 28 mm Hg @ 20 deg C
Vapor Density: 3.5
Evaporation Rate: 3.1 (butyl acetate=1)
Viscosity: Not available.
Boiling Point: 212 deg F
Freezing/Melting Point: -54.4 deg F
Decomposition Temperature: Not available.
Solubility: Slightly soluble in water.
Specific Gravity/Density: 0.94 (water=1)
Molecular Formula: C₅H₈O₂
Molecular Weight: 100.0548

Section 10 - Stability and Reactivity

Chemical Stability: Stable. However, may decompose if heated. On long term storage, substances with similar functional groups form explosive peroxides.
Conditions to Avoid: High temperatures, incompatible materials, light, ignition sources, exposure to air.
Incompatibilities with Other Materials: Substance is incompatible with polymerization catalysts (peroxides, persulfates), nitric acid, strong oxidizers, amines, halogens, bases, light, heat.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 80-62-6: OZ5075000

LD50/LC50:
CAS# 80-62-6:
Draize test, rabbit, eye: 150 mg;
Inhalation, mouse: LC50 = 18500 mg/m³/2H;
Inhalation, rat: LC50 = 78000 mg/m³/4H;
Oral, mouse: LD50 = 3625 mg/kg;
Oral, rabbit: LD50 = 8700 mg/kg;
Oral, rat: LD50 = 7872 mg/kg;
Skin, rabbit: LD50 = >5 gm/kg;

Carcinogenicity:
CAS# 80-62-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: Embryo or Fetus: Death, inhalation-rat TC_{Lo}=109g/m³/54M. Specific Developmental Abnormalities: Musculoskeletal, inhalation-rat TC_{Lo}=109g/m³/17M.

Reproductive Effects: Fertility: Post-implantation mortality, inhalation-rat TC_{Lo}=4480mg/m³/2H. Materanl Effects: Menstrual cycle changes, inhalation-rat TC_{Lo}=54mg/m³/24H.

Mutagenicity: Please refer to RTECS# OZ5075000 for specific information.

Neurotoxicity: No information available.

Other Studies:</br>

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information reported.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 80-62-6: waste number U162 (Ignitable waste, Toxic waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Please contact for shipping information	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 80-62-6 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 80-62-6: Effective 4/13/89, Sunset 6/30/98

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 80-62-6: 1000 lb final RQ; 454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 80-62-6: acute, chronic, flammable, reactive.

Section 313

This material contains Methyl methacrylate (CAS# 80-62-6, > 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 80-62-6 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 80-62-6 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 80-62-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XI F

Risk Phrases:

R 11 Highly flammable.

R 37/38 Irritating to respiratory system and skin.

R 43 May cause sensitization by skin contact.

Safety Phrases:

S 24 Avoid contact with skin.

S 37 Wear suitable gloves.

S 46 If swallowed, seek medical advice immediately and show this container or label.

WGK (Water Danger/Protection)

CAS# 80-62-6: 1

Canada - DSL/NDSL

CAS# 80-62-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2B.

Canadian Ingredient Disclosure List

CAS# 80-62-6 is listed on the Canadian Ingredient Disclosure List.

