








Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	Flammable material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system. Lachrymator. Environmental hazard. Refrigerate.	   

Section I. Chemical Product and Company Identification

Chemical Name	Methyl Methacrylate, (stabilized with 6-tert-Butyl-2,4-xyleneol)		
Catalog Number	M0087	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Methyl 2-methyl-2-propenoate		
Chemical Formula	C ₅ H ₈ O ₂		
CAS Number	80-62-6	In case of Emergency Call	Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Methyl Methacrylate, (stabilized with 6-tert-Butyl-2,4-xyleneol)	80-62-6	Min. 99.8%(GC)	Not available.	Rat LD ₅₀ (oral) 7872 mg/kg Rabbit LD ₅₀ (dermal) >5 g/kg Rat LC ₅₀ (inhalation) 78000 mg/m ³ /4H

Section III. Hazards Identification

Acute Health Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : TUMORIGENIC EFFECTS Rat TDLo Implant; 1620 mg/kg TOXIC EFFECTS Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Tumorigenic - Tumors at site of application DEVELOPMENTAL TOXICITY: REPRODUCTIVE EFFECTS Woman TCLo Inhalation; 10 mg/m ³ ; female 9 years of pregnancy TOXIC EFFECTS Maternal Effects - Other effects Effects on Embryo or Fetus - Extra embryonic structures (e.g., placenta, umbilical cord) Effects on Newborn - Delayed effects Rat TCLo Inhalation; 54 mg/m ³ /24 hours; female 8 weeks prior to mating TOXIC EFFECTS Maternal Effects - Menstrual cycle changes or disorders Mouse TCLo Inhalation; 116 ppm/6 hours; female 4 to 13 days of pregnancy TOXIC EFFECTS Effects on Fertility - Post implantation mortality (e.g., dead and or resorbed implants per total number of implants) Effects on Embryo or Fetus - Fetotoxicity (except death, e.g., stunted fetus) Specific Developmental Abnormalities - Musculoskeletal system Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

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Emergency phone number (800) 424-9300

Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	421 °C (789.8 °F)
Flash Points	9°C (48.2°F).	Flammable Limits	LOWER: 1.7% UPPER: 12.5%
Combustion Products	These products are toxic carbon oxides (CO, CO ₂).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Consult with local fire authorities before attempting large scale fire-fighting operations.		


Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable Material. Harmful Material. Irritating Material. Lachrymatory. Environmental hazard. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.
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Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. HARMFUL. IRRITANT. LACHRYMATORY. ENVIRONMENTAL HAZARD. REFRIGERATE. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, reducing agents, alkalis (bases), moisture.
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Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, Colorless.)	Solubility	Soluble in alcohol, ether, acetone, chlorinated hydrocarbons, methyl ethyl ketone, and other organic solvents. Slightly soluble in water (1.6g/100ml @ 20°C), glycol.
Specific Gravity	0.943 (water=1)		
Molecular Weight	100.12	Partition Coefficient	Log P _{ow} 1.38
Boiling Point	100 °C (212 °F)	Vapor Pressure	3.9 kPa @ 20 °C
Melting Point	-48 °C (-54.4 °F)	Vapor Density	3.5 (Air = 1)
Refractive Index	1.413 to 1.416	Volatility	Not available.
Critical Temperature	Not available.	Odor	Characteristic.
Viscosity	0.63 pas (@ 20°C)	Taste	Not available.


Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	May polymerize on exposure to light. Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, reducing agents, strong acids, strong alkalis (bases), moisture, amines, halogens, peroxides.

Section XI. Toxicological Information	
RTECS Number	OZ5075000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD ₅₀ (oral) 7872 mg/kg Rabbit LD ₅₀ (dermal) >5 g/kg Rat LC ₅₀ (inhalation) 78000 mg/m ³ /4H
Chronic Toxic Effects	CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : TUMORIGENIC EFFECTS Rat TDLo Implant; 1620 mg/kg TOXIC EFFECTS Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Tumorigenic - Tumors at site of application DEVELOPMENTAL TOXICITY: REPRODUCTIVE EFFECTS Woman TCLo Inhalation; 10 mg/m ³ ; female 9 years of pregnancy TOXIC EFFECTS Maternal Effects - Other effects Effects on Embryo or Fetus - Extra embryonic structures (e.g., placenta, umbilical cord) Effects on Newborn - Delayed effects Rat TCLo Inhalation; 54 mg/m ³ /24 hours; female 8 weeks prior to mating TOXIC EFFECTS Maternal Effects - Menstrual cycle changes or disorders Mouse TCLo Inhalation; 116 ppm/6 hours; female 4 to 13 days of pregnancy TOXIC EFFECTS Effects on Fertility - Post implantation mortality (e.g., dead and or resorbed implants per total number of implants) Effects on Embryo or Fetus - Fetotoxicity (except death, e.g., stunted fetus) Specific Developmental Abnormalities - Musculoskeletal system Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information	
Ecotoxicity	Not available.
Environmental Fate	Methyl methacrylate's production and use in polymethacrylate resins, in medicinal adhesives, dental technology, bone cements, and as a water-repellent on concrete surfaces may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 38.5 mm Hg at 25 deg C indicates methyl methacrylate will exist solely as a vapor in the ambient atmosphere. Vapor-phase methyl methacrylate will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 7.4 hours. Because methyl methacrylate does not absorb light in the environmental UV spectrum (>290 nm), it is not expected to directly photolyze. If released to soil, methyl methacrylate is expected to have high mobility based upon a Koc of 95. Volatilization from moist soil surfaces is expected to be an important fate process based upon an estimated Henry's Law constant of 3.2X10 ⁻⁴ atm-cu m/mole. Methyl methacrylate may potentially volatilize from dry soil surfaces based upon its vapor pressure. If released into water, methyl methacrylate is not expected to adsorb to suspended solids and sediment in the water column based upon the estimated Koc. Screening studies support rapid biodegradation of methyl methacrylate; it reached 94% of its theoretical BOD in 2 weeks using an activated sludge inoculum. Volatilization from water surfaces is expected to be an important fate process based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 6 hours and 5 days, respectively. An estimated BCF of 7 suggests the potential for bioconcentration in aquatic organisms is low. Hydrolysis of methyl methacrylate may be a significant process under basic conditions based upon a hydrolytic half-life of 3.4 hours at pH 11; half-lives at pH 7, 8, and 9 were 4 years, 140 days, and 14 days respectively. Occupational exposure to methyl methacrylate may occur through inhalation and dermal contact with this compound at workplaces where methyl methacrylate is produced or used. The general population may be exposed to methyl methacrylate via ingestion of drinking water and inhalation or dermal contact with resins, dental products, or artificial nail products containing methyl methacrylate.

Section XIII. Disposal Considerations	
Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information	
DOT Classification	DOT Class 3: Flammable liquid.
PIN Number	UN1247
Proper Shipping Name	Methyl methacrylate monomer, stabilized
Packing Group (PG)	II
DOT Pictograms	

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Emergency phone number (800) 424-9300

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). On DSL.
EINECS Number (EEC)	201-297-1
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R50- Very toxic to aquatic organisms. R51- Toxic to aquatic organisms. R52- Harmful to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	ENCS No. (2)-1036

Section XVI. Other Information

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Notice to Reader

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