



Material Safety Data Sheet

MSDS1001

revised 09-JUN-2005

METHYL METHACRYLATE MONOMER, STABILIZED (thermally stabilized)

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

MSDS Number : 1001
CAS Number : 80-62-6
Formula : $\text{CH}_2\text{C}(\text{CH}_3)\text{COOCH}_3$
Molecular Weight : 100.12
CAS Name : 2-METHYL-2-PROPENOIC ACID, METHYL ESTER

Trade names and Synonyms

METHYL METHACRYLATE MONOMER
MMA
2-METHYL-2-PROPENOIC ACID, METHYL ESTER
METHYL 2-METHYL-2-PROPENOATE
METHACRYLIC ACID, METHYL ESTER
M100

Company Identification

MANUFACTURER/DISTRIBUTOR

Lucite International, Inc.
7275 Goodlett Farms Parkway
Cordova, TN 38016-4909

PHONE NUMBERS

Product Information : 1-800-4-LUCITE
Transportation Emergency : 1-800-424-9300
Medical Emergency : 1-877-886-2143

COMPOSITION/INFORMATION ON INGREDIENTS

Material	CAS Number	%
*METHYL METHACRYLATE	80-62-6	~100

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

*****EMERGENCY OVERVIEW*****
* Flammable. Hazardous polymerization may occur. Irritant by *
* inhalation, in contact with skin and eye and if swallowed. *
* May cause sensitization by skin contact. Colorless liquid *
* with acrid, penetrating odor. *

Potential Health Effects:

EYE: Liquid and vapors can cause moderate irritation (tears, blurred vision and redness).

SKIN: May cause skin irritation. Can cause skin sensitization.

INGESTION: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

INHALATION: High concentration of vapor is irritant to the respiratory tract and may cause dizziness, head ache and anesthetic effects.

CHRONIC (CANCER) INFORMATION: Prolonged and/or repeated exposure may lead to kidney, lungs, heart and liver damage. Unlikely to present a cancer hazard to man.

TERATOLOGY (BIRTH DEFECT) INFORMATION: Developmental toxicity observed in animal tests but only at levels toxic to the mother.

REPRODUCTIVE INFORMATION: No information available but no adverse reproductive effect expected.

FIRST AID MEASURES

First Aid

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT: In case of contact, immediately wash skin with soap and water. Wash contaminated clothing before reuse.

EYE CONTACT: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION: If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: 15 deg. C

Flammable limits in Air, % by Volume:

lower limit : 2.1
upper limit : 12.5

Autoignition temperature: 421 deg. C

Fine mists are explosive below the flash point.

Flammable liquid. Vapor forms explosive mixture with air. Vapors, or gases may travel considerable distances to ignition source and flash back.

Fire and Explosion Hazards: Sealed containers exposed to elevated temperatures may rupture explosively due to polymerization.

Extinguishing Media: Foam, Dry Chemical, CO2. Water spray (by trained personnel).

Fire Fighting Instructions: Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Cool tank/container with water spray. Fight fire from a distance, heat may rupture containers.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel):

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

Initial Containment: Remove source of heat, sparks, flame, impact, friction or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas.

Spill Clean Up: Soak up with sand, oil dry or other non-combustible absorbent material. Cleaned-up material is a RCRA Hazardous Waste.

HANDLING AND STORAGE

Handling (Personnel):

Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Wash clothing after use.

Handling (Physical Aspects):

Close container after each use. Ground container when pouring. Keep away from heat, sparks and flames.

Storage:

Vapors are uninhibited and may form polymers in vents or flame arrestors, resulting in blockage of vents.

Keep container refrigerated. Do NOT expose to direct sunlight. Store in a well ventilated place. Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.

Consult with an Ineos technical representative or the Ineos storage and handling guide for proper storage conditions.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Keep container tightly closed.

Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits.

Personal Protective Equipment:

EYE/FACE PROTECTION: Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying material.

RESPIRATORS: A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain limited circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

PROTECTIVE CLOTHING: Wear impervious clothing to prevent ANY contact with this product, such as gloves, apron, boots, or whole body suit. Nitrile rubber is better than PVC.

Exposure Limits:

METHYL METHACRYLATE

PEL (OSHA): 100 ppm, 8 Hr. TWA

TLV (ACGIH): 50 ppm, 8 Hr. TWA; 100 ppm, 15 min. STEL

LUCITE recommended: 50 ppm, 8 Hr. TWA; 100 ppm, 15 min. STEL

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form	: Mobile liquid
Color	: Clear, colorless
Odor	: Characteristic strong and acrid odor
Odor Threshold	: 0.5 - 1 ppm
Boiling Point	: 100.5 deg. C at 760 mm/Hg
Melting Point	: -48 deg. C
Vapor Pressure	: 28 mm/Hg at 20 deg. C

Density : 0.949 g/ml at 15.5 deg. C
Solubility in Water : 1.6 WT% (20 deg. C)
Solubility (Other) : Miscible with most organic solvents
Partition Coefficient : 1.38
Vapor Density (Air 1) : 3.5

STABILITY AND REACTIVITY

Chemical Stability: Unstable with heat

Incompatibility with Other Materials: Incompatible with oxidizing and reducing agents. Material is a strong solvent and can soften paints and rubber.

Decomposition: Decomposes with heat. Hazardous gases/vapors produced are carbon monoxide, carbon dioxide and smoke.

Polymerization: Polymerization can occur.

Other Hazards: Conditions leading to polymerization are loss of refrigeration and inadvertent addition of catalyst. See MONO-001 (Additional Information and References Section lists full title) for details on inhibitors and storage stability. In absence of refrigeration chemical inhibitors must be added. Contamination of product may also cause hazardous polymerization.

TOXICOLOGICAL INFORMATION

ANIMAL DATA:

Inhalation 4 hour LC50: 7093 ppm in rats (Very low toxicity by inhalation)
Dermal LD50 : > 35,500 mg/kg in rabbits (Very low toxicity by contact)
Oral LD50: 7900 mg/kg in rats (Very low toxicity by ingestion)

Inhalation:

Irritating to respiratory system. High atmospheric concentrations may lead to irritation of the respiratory tract, dizziness, headache and anesthetic effects.

Skin Contact:

May cause sensitization by skin contact. Irritating to skin. Repeated and/or prolonged contact may cause dermatitis.

Eye Contact:

High vapor concentration will cause irritation.

Ingestion:

Low oral toxicity but ingestion may cause irritation of the gastrointestinal tract.

Long Term Exposure:

Repeated exposure to high levels produces adverse effects on the heart, lungs, liver and kidneys.

Repeated exposure of animals by inhalation to levels at or above the occupational exposure level produces adverse effects on the nasal epithelium (levels of 100 and 400 ppm).

There is no reason to believe that methyl methacrylate represents a carcinogenic or mutagenic hazard to man based upon evidence from well

conducted animal studies, relevant mutagenicity studies and adequate epidemiologist studies in relevant cohorts. Recent studies in animals have shown that high exposures do not produce embryo or feototoxic nor tetratogenic effects in the presence or maternal toxicity. None of these effects are likely to occur in humans provided exposure is maintained at or below the occupational exposure limit

ECOLOGICAL INFORMATION

Environmental Fate and Distribution:

High tonnage material produced in wholly contained systems. Liquid with moderate volatility. Sparingly soluble in water. Product has low potential for bioaccumulation. The product is predicted to have high mobility in soil.

Persistence and Degradation: Not readily biodegradable. Chemical Oxygen Demand (COD) 88% (28 days). Inherent Biodegradation: Dissolved Organic Carbon Removal (DOC removal) >95% (28 days).

Toxicity: Low toxicity to fish. LC50 (fish): Typically > 100 mg./L. LC50 (fathead minnow) (96 Hr.) (static) 130 mg./L.

Harmful to aquatic invertebrates. EC50 (Daphnia Magna) (48 Hr.) 69 mg./L.

Low toxicity to algae. EC50 (Selenastrum Capricornutum) (96 Hr.) 170 mg./L.

NOEC (zebra fish) (35 day) (flow through) 8.4 mg./L.

Effect on Effluent Treatment: Product is substantially removed in biological treatment processes.

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name	: METHYL METHACRYLATE MONOMER, STABILIZED
Hazard Class	: 3
I.D. No. (UN/NA)	: UN1247
Packing Group	: II
Reportable Quantity	: 1,000 lb.

Shipping Containers

If material is shipped in quantities greater than 1000 lb. per container, the Proper Shipping Name is RQ METHYL METHACRYLATE MONOMER, STABILIZED.

TGD

Proper Shipping Name	: METHYL METHACRYLATE MONOMER, STABILIZED
TGD Class	: 3.2 (9.2)
I.D. No. (UN/NA)	: UN1247
TMD Packing Group	: II

REGULATORY INFORMATION

U.S. Federal Regulations:

TSCA Inventory Status: Reported/Included.
Superfund reportable discharge = 1000 lb.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : Yes
Reactivity : Yes
Pressure : No

Canadian Regulations:

WHMIS Classification: B2: flammable liquid. D-2B: Toxic
F: dangerously reactive material.

European Regulations: EINECS: 201-297-1

EEC Classification : HIGHLY FLAMMABLE AND IRRITANT

Hazard Symbols: F, Xi

Risk Phrases:

R11. Highly flammable.

R37/38. Irritating to eyes, respiratory system and skin

R43. May cause sensitization by skin contact.

Safety Phrases:

S24. Avoid contact with skin.

S37. Wear suitable gloves.

S46. If swallowed, seek medical advice immediately and show this container or label.

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health : 2

Flammability : 3

Reactivity : 2

NPCA-HMIS Rating

Health : 2

Flammability : 3

Reactivity : 2

Personal Protection rating to be supplied by user
depending on use conditions.

Additional Information:

NA = Not Applicable

NE = Not Established

= Indicates updated section

See MONO-001, Methyl Methacrylate Storage and Handling Bulletin for details on storage stability. Available from Lucite International.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states

indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Material Safety Data Sheet contain no such substances except for those specifically listed below:

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES): Methyl Methacrylate

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER:
None known.

WARNING: SUBSTANCES KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM: None known.

SUBSTANCES ON THE NEW JERSEY WORKPLACE HAZARDOUS SUBSTANCE LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.1% FOR SUBSTANCES IDENTIFIED AS CARCINOGENS, MUTAGENS OR TERATOGENS): Methyl Methacrylate.

MEDICAL USE: CAUTION: DO NOT USE IN MEDICAL APPLICATIONS INVOLVING IMPLANTATION IN THE HUMAN BODY.

Lucite International has not performed clinical testing on the suitability of acrylic products in any medical application and is not aware of any data relating to the compatibility of Lucite International' products, or devices manufactured from them, for such applications. Lucite International products are not designed or manufactured for use in implantation in the human body or for prolonged contact with internal body fluids or tissues. LUCITE has neither sought, nor received, approval from the FDA or any other agency for the use of these acrylic materials in implantation in the human body or for prolonged contact with internal body fluids or tissues.

Methacrylate monomers are used safely in a wide variety of applications including some areas of personal hygiene. We are aware of some reports suggesting that use of methacrylate monomers in fingernail extension applications may result in loosening or shedding of the nails of the user as well as respiratory or other effects in those exposed to high levels of the vapors. LUCITE has performed no technical or clinical testing and has no data to support the use of methacrylate monomers in this application. Under no circumstances should methacrylate monomers be used in this or similar applications.

The information herein is given in good faith but no warranty, expressed or implied, is made. Lucite International assumes no responsibility for personal injury or property damage that may arise from use of this material. Vendees or users assume all risks associated with the use of this material.

Responsibility for MSDS :

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