



PERSPE
south africa



Methyl Methacrylate Monomer
Safety Datasheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

Product Name: METHYL METHACRYLATE

Address/Phone No.: Lucite International
Cassel
P.O Box 8
Billingham
TS23 1LE
United Kingdom
Tel: +44 (0)1642 735 042**Emergency Phone No:** 01642 452 461**Use:** Monomer for the production of acrylic polymers and intermediate for production of methacrylate esters.

2. COMPOSITION/INFORMATION ON INGREDIENTS**PRODUCT DESCRIPTION**

Alternative names; Stabilised methyl methacrylate monomer; 2- propenoic acid; 2; methyl-, methyl ester; MMA; MMM.
This product contains methyl methacrylate and low levels of stabiliser.

HAZARDOUS INGREDIENT(S)	%W/W	CAS No.	EC No.	EC Classification
Methyl methacrylate	>99	000080-62-6	201-297-1	F,Xi;R11 R37/38 R43

For full text of R phrases see section 16.

3. HAZARDOUS IDENTIFICATION

Highly flammable.

Irritation to respiratory system and skin. May cause sensitization by skin contact. High atmospheric concentration may lead to irritation of the respiratory tract and anaesthetic effects. Repeated and/or prolonged contact may cause dermatitis.

EC Classification: HIGHLY FLAMMABLE AND IRRITANT

(Revision 12 - GB00)

(Date: 07/02)

Product name: METHYL METHACRYLATE

4. FIRST- AID MEASURES

Inhalation: Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash skin immediately with water. If symptoms (irritation and blistering) occur, obtain medical attention.

Eye Contact: Irrigate with eyewash solution or clean water, holding the eyelids apart, for atleast 10 minute. Obtain immediate medical attention.

Ingestion: Do not induce vomiting. Wash out mouth with water and give 200ml – 300ml (half a pint) of water to drink. Obtain medical attention.

Further Medical Treatment

Symptomatic treatment and supportive therapy as indicated.

5. FIRE – FIGHTING MEASURES

Highly flammable.

May polymerise on heating. Sealed containers may rupture explosively if hot.

Extinguishing media: water spray, foam, dry powder or CO₂.

Fire Fighting Protective Equipment: A self contained breathing apparatus and suitable protective clothing should be worn.

7. HANDLING AND STORAGE

7.1 HANDLING

Avoid contact with skin and eyes. Avoid inhalation of high concentrations of vapours. Use only in well ventilated areas. The vapour is heavier than air; beware of pits and confined spaces.

7.2 STORAGE

Keep in a cool, well ventilated place. Keep away from sources of ignition – No smoking. Keep away from heat and direct sunlight.

IMPORTANT: Methacrylates stored in bulk must be kept in contact with air (oxygen).

Monomer vapours are uninhibited and may form polymers in vent or flame arresters, resulting in blockage vents.

Storage Temperature: Preferably not exceeding 25°C.
For very low stabilised grades (less than 2ppm Taponal A) storage should not exceed 15°C.

Storage: Provided proper storage and handling procedures are followed (see the brochure "Storage and handling of Methacrylate Ester Monomers"the product may be stored to upto 6 months from the date of receipt. Product stabilized with Taponal A at less than 25 ppm should be used within 3 months. Product stabilized with Taponal A at less than 2 ppm should be used within 1 week.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

The following information is given as general guidance.

Respirators: Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. A suitable mask with filter type A may be appropriate. In the event of formation of particularly high levels of vapour a self contained breathing apparatus may be appropriate.

Eye Protection: Safety spectacles/ Full face shield

Gloves: Wear suitable gloves. The most appropriate glove will depend on consideration of a number of factors including the physical strength of the glove, the degree of manual dexterity required, and the amount of permeation through the glove material and perhaps the cost of the glove. In permeation tests PVA/Polyethylene laminate and supported PVA gloves perform the best. Butyl and nitrile rubber gloves also offer some protection but should be changed immediately if exposure occurs. Latex "surgical" gloves offer little protection. Gloves should be changed regularly and if excessive exposure has occurred. Further information is available in "Chemical Protective Gloves for Methacrylic Acid and its Esters" which is available on request.

Other: Wear suitable protective clothing.

Occupational Exposure Limits. HAZARDOUS INGREDIENT(S)

LTEL 8hr TWA ppm	LTEL 8hr TWA mg/m ³	STEL ppm	STEL mg/m ³	Notes OES
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9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	mobile liquid
Colour:	clear, colourless
Odour:	characteristics strong and acrid
Odour Threshold (ppm):	0.5-1.0
pH (value):	Not applicable
Boiling Point (°C):	100.5
Melting Point (°C):	-48
Flash point (°C):	10 (closed up)
Flammable Limits (Lower) (%v/v):	2.1
Flammable Limits (Upper) (%v/v):	12.5
Auto Ignition Temperature (°C):	421
Explosive Properties:	Not applicable
Oxidising Properties:	Not applicable
Vapour Pressure (Pascals):	3600 at 20°C
Density:	0.949 at 15.5°C

Solubility (other):	Miscible with most organic solvents
Partition Coefficient:	1.38 (log pow)
Minimum Ignition Energy (mJ):	0.89 – 0.97 at 23°C
Vapour Density (Air = 1):	3.5

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10. STABILITY AND REACTIVITY

Hazardous Reactions:	Stable in the presence of inhibitor. Susceptible to polymerisation initiated by prolonged heating or the presence of catalyst. Incompatible materials: Polymerisation catalysts, such as peroxy or azo compounds, strong acids, alkalis and oxidising agents.
Hazardous Decomposition Product(s):	Does not decompose up to auto - ignition temperature.

TOXICOLOGICAL INFORMATION

Inhalation

Irritating to the respiratory system.

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

Skin Contact

May cause sensitisation by skin contact.

Irritating to skin. Repeated and/or prolonged contact with may cause dermatitis.

Eye Contact

High vapour 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 400ppm). 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 epidemiology studies in relevant cohorts. Recent studies in animals have shown that high exposures do not produce embryo or foetotoxic nor teratogenic effects in the presence of maternal toxicity.

None of these effects are likely to occur in humans, provided exposure is maintained at or below the occupational exposure limit.

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12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

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

Persistence and Degradation.

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 hour) (static) 130 mg/l.

Harmful to aquatic invertebrates.

EC50 (Daphnia magna) (48 hour) 69 mg/l.

Low toxicity to algae.

EC50 (selenastrum capricornutum) (96 hour) 170 mg/l.

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

Effect on Effluent Treatment

Disposal should be in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerators suitable for the disposal of methyl methacrylate. Decontaminate empty drums before recycling.

13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with local, state or national legislation. Incinerate under approved controlled conditions, using incinerators suitable for the disposal of methyl methacrylate. Decontaminate empty drums before recycling.

14. TRANSPORT INFORMATION

UN No.:	1247
UN Pack. Group:	II
AIR	
ICAO/IATA	
-primary:	3
UN Packing group Air:	II
SEA	
IMD	
-primary:	3
Proper Shipping Name:	METHYL METHACRYLATE MONOMER, STABILIZED
IMDG EMS:	3-07
Road/Rail	
ADR/RID Class:	3
ADR Classification Code:	F1
ADR HIN:	339
Transport Category:	2
UK TANKER REGULATIONS - DANGEROUS GOODS	
Emergency Action Code:	3YE

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Product Name: METHYL METHACRYLATE

15. REGULATORY INFORMATION

Hazard Symbol: F, Xi
Risk Phrases: R11: Highly flammable.
R37/38: Irritating to respiratory system and skin.
R43: May cause sensitisation 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.

EC Classification: HIGHLY FLAMMABLE AND IRRITANT

16. OTHER INFORMATION

This data sheet was prepared in accordance with Directive 2001/58/EC.

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 International 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.

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

Lucite International has performed no clinical testing on the use of this product in any medical application. Lucite International has no data to support the use of this product in any medical application. This product was not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. Lucite International has neither sought, nor received, approval from any regulatory agency for the use of this product in implantation in the human body or in contact with internal body fluids or tissues.

For further information on the properties and uses, or storage and handling, of Methyl Methacrylate refer to Technical Service Note No. TS/AG/2108: Methyl Methacrylate Properties, or TS/AG/2414: The Storage and Handling of Methacrylate Ester Monomers.

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The following sections contain revisions or new statements: 1, 2,3,9,11,12,14,15,16

GLOSSARY

OES: Occupational Exposure Standard (UK HSE EH40)
LTEL: Long Term Exposure Limit
STEL: Short Term Exposure Limit
TWA: Time Weighted Average

Full text of R Phrases

R11: Highly flammable.

R37/38: Irritating to respiratory system and skin.

R43: May cause sensitisation by skin contact.

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