MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/20/2013 Version 1.1

SECTION 1. Identification

Product identifier

Product number	800590
Product name	Methyl methacrylate (stabilised) for synthesis

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for synthesis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 2, H225
Specific target organ systemic toxicity - single exposure, Category 3, H335
Skin irritation, Category 2, H315
Skin sensitization, Category 1, H317

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H225 Highly flammable liquid and vapor.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.

Precautionary Statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P280 Wear protective gloves.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P403 + P235 Store in a well-ventilated place. Keep cool.

OSHA Hazards
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	$CH_2=C(CH_3)COOCH_3$	$C_5H_8O_2$ (Hill)
CAS-No.	80-62-6	
Molar mass	100.12 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.
methyl methacrylate (>= 90 % - <= 100 %)
80-62-6

SECTION 4. First aid measures

Description of first-aid measures
Inhalation
After inhalation: fresh air.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact
After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

Ingestion
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
irritant effects, Allergic reactions, Cough, depressed respiration, Shortness of breath, Drowsiness, muscular weakness, CNS disorders, Coma

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible material, Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at ambient temperatures.
Pay attention to flashback.
Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.
Cool closed containers exposed to fire with water spray.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
methyl methacrylate 80-62-6			
ACGIH	Time Weighted Average (TWA):	50 ppm	
	Short Term Exposure Limit (STEL):	100 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	100 ppm 410 mg/m³	
OSHA_TRANS	PEL:	100 ppm 410 mg/m³	
Z1A	Time Weighted Average (TWA):	100 ppm 410 mg/m³	

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Flame retardant antistatic protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	No information available.
pH	not applicable
Melting point	-48 °C
Boiling point/boiling range	214 °F (101 °C)
Flash point	50 °F (10 °C) Method: DIN 51755 Part 1
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	2.1 %(V)
Upper explosion limit	12.5 %(V)
Vapor pressure	53 hPa at 68 °F (20 °C)
Relative vapor density	3.45
Relative density	0.94 g/cm³ at 68 °F (20 °C)
Water solubility	15 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 1.38 (20 °C) OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	0.6 mPa.s at 68 °F (20 °C)
Explosive properties	No information available.

Ignition temperature	806 °F (430 °C) Method: DIN 51794

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Stabilizer

Hydroquinone monomethyl ether

Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapors with:

Strong oxidizing agents

Exothermic reaction with:

Amines, polymerization initiators, Ammonia

Risk of explosion with:

Aldehydes

Conditions to avoid

Warming.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
Exposure to light.

Incompatible materials

rubber, various plastics

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Inhalation, Eye contact, Skin contact

Target Organs

Eyes
Skin
Respiratory system

Acute oral toxicity

LD50 rat: 7,872 mg/kg (RTECS)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity
LC50 rat: 78,000 mg/m³; 4 h (RTECS)
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Irritating to respiratory system.

Acute dermal toxicity
LD50 rabbit: > 5,000 mg/kg
(RTECS)

Skin irritation
Causes skin irritation.

Eye irritation
slight irritation

Sensitization
Human experience
Result: positive
(IUCLID)

Sensitization test (Magnusson and Kligman):
Result: positive
Method: OECD Test Guideline 406

May cause an allergic skin reaction.

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Mutagenicity (mammal cell test):
Result: positive
Method: OECD Test Guideline 476

Specific target organ systemic toxicity - single exposure
May cause respiratory irritation.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

	by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

After absorption of toxic quantities:
CNS disorders, Drowsiness, depressed respiration, muscular weakness, Coma
Toxic effect on:
Liver, Kidney
Further data:
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Lepomis macrochirus (Bluegill sunfish): 191 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 69 mg/l; 48 h (IUCLID)

Toxicity to algae
IC50 Pseudokirchneriella subcapitata (green algae): 170 mg/l; 4 d
OECD Test Guideline 201

Toxicity to bacteria
EC5 Pseudomonas putida: 100 mg/l; 16 h (IUCLID)

Persistence and degradability

Biodegradability
> 95 %; 28 d
OECD Test Guideline 302B
Readily biodegradable.

Biochemical Oxygen Demand (BOD)
140 mg/g (5 d)

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: 1.38 (20 °C)
OECD Test Guideline 107
Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Additional ecological information
Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1247
Proper shipping name	METHYL METHACRYLATE MONOMER, STABILIZED
Class	3
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1247
Proper shipping name	METHYL METHACRYLATE MONOMER, STABILIZED
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1247
Proper shipping name	METHYL METHACRYLATE MONOMER, STABILIZED
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Flammable Liquid
Skin irritant
Skin sensitizer
Respiratory irritant
Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

methyl methacrylate	80-62-6

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients
methyl methacrylate

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients
methyl methacrylate

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients
methyl methacrylate

Pennsylvania Right To Know

Ingredients
methyl methacrylate

New Jersey Right To Know

Ingredients
methyl methacrylate

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.
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