# Chemical Safety Data Sheet MSDS / SDS

# Methyl methacrylate

Revision Date:2025-01-11 Revision Number:1

# SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### **Product identifier**

Product name	: Methyl methacrylate
CBnumber	: CB8854425
CAS	: 80-62-6
EINECS Number	: 201-297-1
Synonyms	: MMA,Methyl methacrylate
Relevant identified uses of the se	ubstance or mixture and uses advised against
Relevant identified uses	: For R&D use only. Not for medicinal, household or other use.
Relevant identified uses Uses advised against	: For R&D use only. Not for medicinal, household or other use. : none
Relevant identified uses Uses advised against Company Identification	: For R&D use only. Not for medicinal, household or other use. : none

Company	: Chemicalbook
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

# SECTION 2: Hazards identification

#### GHS Label elements, including precautionary statements

Symbol(GHS)

Signal word

Danger

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P311 Call a POISON CENTER or doctor/physician.

P370+P378 In case of fire: Use ... for extinction.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

#### Hazard statements

- H225 Highly Flammable liquid and vapour
- H315 Causes skin irritation
- H317 May cause an allergic skin reaction
- H335 May cause respiratory irritation
- H370 Causes damage to organs

# SECTION 3: Composition/information on ingredients

#### Substance

Product name	: Methyl methacrylate
Synonyms	: MMA, Methyl methacrylate
CAS	: 80-62-6
EC number	: 201-297-1
MF	: C5H8O2
MW	: 100.12

# SECTION 4: First aid measures

#### Description of first aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

#### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### Indication of any immediate medical attention and special treatment needed

No data available

# **SECTION 5: Firefighting 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

Carbon oxides

Flash back possible over considerable distance., Container explosion may occur under fire conditions.

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

#### Advice for firefighters

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**

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

#### **NFPA 704**

2	3	2
HEALTH	2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. <u>diethyl</u> <u>ether</u> , ammonium phosphate, iodine)
FIRE	3	Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, <u>acetone</u> )
REACT	2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water (e.g. white phosphorus, potassium, sodium)
SPEC. HAZ.		

### SECTION 6: Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away Chemical Book from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

#### **Environmental precautions**

Do not let product enter 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.

#### **Reference to other sections**

For disposal see section 13.

### SECTION 7: Handling and storage

#### Precautions for safe handling

#### Advice on protection against fire and explosion

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

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

#### Conditions for safe storage, including any incompatibilities

#### Storage conditions

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

#### Storage stability

Recommended storage temperature 2 - 8 °C

#### Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

# SECTION 8: Exposure controls/personal protection

#### control parameter

#### Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

#### **Exposure controls**

Personal protective equipment

4

#### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses Tightly fitting safety goggles

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Splash contact Material: butyl-rubber

Minimum layer thickness: 0,3 mm Break through time: 66 min

Material tested:Butoject? (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection** 

Flame retardant antistatic protective clothing.

**Respiratory protection** 

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

#### **Exposure limits**

NIOSH REL: TWA 100 ppm (410 mg/m<sup>3</sup>), IDLH 1,000 ppm; OSHA PEL: TWA 100 ppm; ACGIH TLV: TWA 100 ppm with intended TWA and STEL values of 50 and 100 ppm, respectively.

## SECTION 9: Physical and chemical properties

#### Information on basic physicochemical properties

Appearance	colorless liquid
Odour	pungent
Odour Threshold	0.21ppm
pH	No data available
Melting point/freezing point	Melting point/range: -48 °C - lit.
Initial boiling point and boiling range	100 °C - lit.
Flash point	10 °C - closed cup - DIN 51755 Part 1
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive	Upper explosion limit: 12,5 %(V) Lower explosion limit: 2,1 %(V)
limits	

Vapour pressure	37 hPa at 20 °C - OECD Test Guideline 104
Vapour density	ca.3,5 at 20 °C
Relative density	0,94 at 20 °C
Water solubility	15,3 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: 1,38 at 20 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Autoignition temperature	435 °C at 1.013,25 hPa
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 0,53 mPa.s at 20 °C
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	2.46 x 10 <sup>-4</sup> atm?m <sup>3</sup> /mol at 20 °C (approximate - calculated from water solubility and vapor pressure)

#### Other safety information

Surface tension 61 mN/m - OECD Test Guideline 115 Relative vapor density

ca.3,5 at 20 °C

# 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) .

Polymerizes with evolution of heat. Avoid contact with incompatible materials. Unless inhibited, product can polymerize, raising temperature and pressure, possibly rupturing container. Check inhibitor content often adding to bulk liquid if needed. Do not blanket or mix with oxygen-free gas as it renders inhibitor ineffective.

#### Possibility of hazardous reactions

Polymerizes readily unless inhibited.

#### Conditions to avoid

May polymerize on exposure to light.

Heat, flames and sparks. Heat. Extremes of temperature and direct sunlight. Warming.

#### Incompatible materials

rubber, various plastics, Strong oxidizing agents

#### Hazardous decomposition products

In the event of fire: see section 5

#### Information on toxicological effects

Acute toxicity LD50 Oral - Rat - 7.872 mg/kg Remarks: (RTECS) LC50 Inhalation - Rat - male and female - 4 h - 29,8 mg/l Remarks: (ECHA)LC50 Inhalation - Rat - 4 h - 78.000 mg/m3 LD50 Dermal - Rabbit - male - > 5.000 mg/kg (OECD Test Guideline 402) Skin corrosion/irritation Skin - Rabbit Result: Irritating to skin. - 4 h Remarks: (ECHA) Serious eye damage/eye irritation Eyes - Rabbit Result: No eye irritation Remarks: (ECHA) Respiratory or skin sensitization (OECD Test Guideline 429) Germ cell mutagenicity Test Type: Ames test Test system: S. typhimurium Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: in vivo assay Species: Mouse Application Route: Inhalation Method: OECD Test Guideline 478 Result: negative Carcinogenicity No data available **Reproductive toxicity** No data available Specific target organ toxicity - single exposure Inhalation - May cause respiratory irritation. Specific target organ toxicity - repeated exposure No data available Aspiration hazard No data available Toxicity The acute toxicity of methyl methacrylate is low. Irritation of the skin, eye, and nasal cavity has been observed in rodents and rabbits exposed to relatively high concentrations of methyl methacrylate. The chemical is a mild skin sensitizer in animals. The effect observed most frequently at lowest concentration after repeated inhalation exposure to methyl methacrylate is irritation of the nasal cavity. Effects on the kidney and

liver at higher concentrations have also been reported.

# SECTION 12: Ecological information

Toxicity

Toxicity to fish

flow-through test LC50 - Lepomis macrochirus (Bluegill sunfish) - 191 mg/l - 96 h Remarks: (ECHA)

static test LC50 - Lepomis macrochirus (Bluegill sunfish) - 283 mg/l - 96 h Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates

flow-through test NOEC - Daphnia magna (Water flea) - 48 mg/l - 48 h Remarks: (ECHA)

flow-through test EC50 - Daphnia magna (Water flea) - 69 mg/l - 48 h Remarks: (ECHA)

#### Toxicity to algae

static test EC50 - Pseudokirchneriella subcapitata - > 110 mg/l - 72 h (OECD Test Guideline 201) static test NOEC - Pseudokirchneriella subcapitata - > 110 mg/l - 72 h (OECD Test Guideline 201)

#### Persistence and degradability

Biodegradability aerobic - Exposure time 14 d Result: 94 % - Readily biodegradable. (OECD Test Guideline 301C) Biochemical Oxygen Demand (BOD) 140 mg/g

#### **Bioaccumulative potential**

No data available

#### Mobility in soil

No data available

#### Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### **Toxics Screening Level**

The current ITSL for Methyl methacrylate is 700  $\mu\text{g/m3}$  , with annual averaging time (AT).

#### Other adverse effects

Additional ecological information

No data available

# SECTION 13: Disposal considerations

#### Waste treatment methods

#### Incompatibilities

Vapor may form explosive mixture with air. Reacts in air to form a heat-sensitive explosive product @ 60°C. Incompatible with nitrates, oxidizers, peroxides, strong acids; strong alkalis; oxidizers, reducing agents; amines, moisture. Contact with benzoyl peroxide may cause ignition, fire and explosion.

#### Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### Waste Disposal

Consult with environmental regulatory agencies for guidance on acceptable disposal practices. Generators of waste containing this contaminant (≥100 kg/mo) must conform to EPA regulations governing storage, transportation, treatment, and waste disposal. Incineration may be allowed.

## **SECTION 14: Transport information**

#### **UN number**

ADR/RID: 1247 IMDG: 1247 IATA: 1247

#### UN proper shipping name

# ADR/RID: METHYL METHACRYLATE MONOMER, STABILIZED IMDG: METHYL METHACRYLATE MONOMER, STABILIZED

IATA: Methyl methacrylate monomer,

#### stabilized

14.3	Transport hazard class(es) ADR/RID: 3 IMDG: 3	IATA: 3
14.4	Packaging group ADR/RID: II IMDG: II	IATA: II

1.

#### **Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

#### Special precautions for user

No data available

## **SECTION 15: Regulatory information**

Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **Regulations on the Safety Management of Hazardous Chemicals**

China Catalog of Hazardous chemicals 2015:Listed. website: https://www.mem.gov.cn/

#### Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: https://www.mee.gov.cn/ EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: https://echa.europa.eu/

Korea Existing Chemicals List (KECL):Listed. website: http://ncis.nier.go.kr

New Zealand Inventory of Chemicals (NZloC):Listed. website: https://www.epa.govt.nz/

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: https://emb.gov.ph/

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: https://www.epa.gov/

Vietnam National Chemical Inventory:Listed. website: https://chemicaldata.gov.vn/

### **SECTION 16: Other information**

#### Abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

- CAS: Chemical Abstracts Service
- EC50: Effective Concentration 50%
- IATA: International Air Transportation Association
- IMDG: International Maritime Dangerous Goods
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- STEL: Short term exposure limit
- TWA: Time Weighted Average

#### References

- [1] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- [2] ChemlDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- [3] ECHA European Chemicals Agency, website: https://echa.europa.eu/
- [4] eChemPortal The Global Portal to Information on Chemical Substances by OECD, website:

http://www.echemportal.org/echemportal/index?pageID=0&request\_locale=en

- [5] ERG Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- [6] Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- [7] HSDB Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- [8] IARC International Agency for Research on Cancer, website: http://www.iarc.fr/
- [9] IPCS The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- [10] Sigma-Aldrich, website: https://www.sigmaaldrich.com/

#### **Other Information**

Usually contains hydroquinone, hydroquinone methyl ether and dimethyl t-butylphenol as inhibitors of polymerization. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Do NOT take working clothes home.

#### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.