

Chemical Safety Data Sheet MSDS / SDS

Methacrylic acid SDS

Revision Date:2024-04-25 Revision Number:1

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier**

Product name: Methacrylic acid

CAS: 79-41-4

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

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SECTION 2: Hazards identification**Classification of the substance or mixture**

Acute toxicity - Category 4, Oral

Acute toxicity - Category 4, Dermal

Skin corrosion, Sub-category 1A

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

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

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

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Methacrylic acid

Common names and synonyms: Methacrylic acid

CAS number: 79-41-4

EC number: 201-204-4

Concentration: 100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

Following skin contact

First rinse with plenty of water for at least 15 minutes, then remove contaminated clothes and rinse again.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Rest. Refer for medical attention .

Most important symptoms/effects, acute and delayed

INHALATION: Severe irritation to respiratory tract. EYES: Short contact can cause severe damage. SKIN: Causes severe irritation and burns. Ingestion: High hazard - may cause death or permanent injury on short exposure to small quantities. OTHER: May affect blood pressure temporarily. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Organic acids and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Use dry chemical, carbon dioxide, or alcohol foam extinguishers. Vapors are heavier than air and will collect in low areas. Vapors may travel long distances to ignition sources and flashback. Vapors in confined area may explode in fire. Storage containers and parts of containers may rocket great distances, in many directions. If materials or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Notify local health and fire officials and pollution control agencies. From a secure, explosion-proof location, use water spray to cool exposed containers. If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolors, or shows any signs of deforming), withdraw immediately to a secure position. If employees are expected to fight fires, they must be trained and equipped.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Vapor forms explosive mixtures with air. Thermal decomposition produces carbon monoxide and carbon dioxide. Behavior in Fire: Vapors form explosive mixtures with air. Sealed containers may rupture explosively at elevated temperatures (polymerization). (USCG, 1999)

Special protective actions for fire-fighters

Use AFFF, alcohol-resistant foam, powder, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Collect leaking and spilled liquid in sealable plastic containers as far as possible. Cautiously neutralize remainder with aqueous sodium carbonate or lime. Then wash away with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents. Personal protection: complete protective clothing including self-contained breathing apparatus.

Environmental precautions

Collect leaking and spilled liquid in sealable plastic containers as far as possible. Cautiously neutralize remainder with aqueous sodium carbonate or lime. Then wash away with plenty of water. Do NOT absorb in saw-dust or other combustible absorbents. Personal protection: complete protective clothing including self-contained breathing apparatus.

Methods and materials for containment and cleaning up

Evacuate and restrict persons not wearing protective equipment from area of spill or leak until cleanup is complete. Remove all ignition sources. Establish forced ventilation to keep levels below explosive limit. Absorb liquids in vermiculite, dry sand, earth, or a similar non-organic materials and deposit in sealed containers. Using caution, neutralize remainder with aqueous sodium carbonate or lime. Then wash away with plenty of water. Keep this chemical out of a confined space, such as a sewer, because of the possibility of an explosion, unless the sewer is designed to prevent the build-up of explosive concentrations. It may be necessary to contain and dispose of this chemical as a hazardous waste. If material or contaminated runoff enters waterways, notify downstream users of potentially contaminated waters. Contact your Department of Environmental Protection or your regional office of the federal EPA for specific recommendations. If employees are required to clean-up spills, they must be properly trained and equipped.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Above 77°C use a closed system and ventilation. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from strong oxidants and food and feedstuffs. Cool. Keep in the dark. Keep in a well-ventilated room. Store only if stabilized. Prior to working with this chemical you should be trained on its proper handling and storage. Before entering confined space where this chemical may be present, check to make sure that an explosive concentration does not exist. Store in tightly closed containers in a cool, well ventilated area away from oxidizers (such as perchlorates, peroxides, permanganates, chlorates and nitrates). Methacrylic acid should be stored at temperatures below 15 degrees C. Sources of ignition such as smoking and open flames are prohibited where Methacrylic acid is handled, used, or stored. Wherever Methacrylic acid is used, handled, manufactured, or stored, use explosion-proof electrical equipment and fittings.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 20 ppm as TWA.MAK: 180 mg/m³, 50 ppm; peak limitation category: I(2); pregnancy risk group: C

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear face shield.

Skin protection

Protective clothing.

Respiratory protection

Use ventilation (not if powder), local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Liquid.
Colour:	Clear, colourless.
Odour:	Acrid, repulsive odor

Melting point/freezing point:	15.4 - 15.5 °C.
Boiling point or initial boiling point and boiling range:	162 °C. Atm. press.:1 013 hPa.
Flammability:	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 1.6% by volume; Upper flammable limit: 8.8% by volume
Flash point:	67 °C. Atm. press.:1 013 hPa.
Auto-ignition temperature:	400 °C. Atm. press.:1 013 hPa.
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	dynamic viscosity (in mPa s) = 1.38. Temperature:25.0°C. Remarks:Temperature: unspecified, but we assume it to be room temperature ca. 22 - 25°C.
Solubility:	Miscible with water
Partition coefficient n-octanol/water:	log Pow = 0.93. Temperature:22 °C.
Vapour pressure:	0.97 hPa. Temperature:20 °C. Remarks:Calculated using the Clausius-Clapeyron equation; $VP=e^{-6303.1*1/temp+21.186}$; temp = 20 °C = 20°C.
Density and/or relative density:	1.01 g/cm ³ . Temperature:20 °C.
Relative vapour density:	>3 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

The substance readily polymerizes due to heating or under the influence of light, oxidizing agents such as peroxides, or in the presence of traces of hydrochloric acid. This generates fire or explosion hazard. Attacks metals.

Chemical stability

Acrylic acid and methacrylic acid readily polymerize in the presence of light, heat and oxygen, and also under the action of oxidizing agents such as peroxides.

Possibility of hazardous reactions

Flammable when exposed to heat, flame, or oxidizers. Vapours are uninhibited and may polymerize, causing blockage of vents. METHACRYLIC ACID reacts with strong oxidizing agents. Presents a storage hazard: violent exothermic polymerizations leading to explosion can occur spontaneously, particularly at low inhibitor or stabilizer concentrations [Anon., CISHC Chem. Safety Summ., 1979, 50, p. 34; Bond, J., Loss Prev. Bull., 1991, 101, p. 1].

Conditions to avoid

no data available

Incompatible materials

Oxidizers, elevated temperatures, hydrochloric acid [Note: Typically contains 100 ppm of the monomethyl ether of hydroquinone to prevent polymerization].

Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male) - 1 320 mg/kg bw.

Inhalation: LC50 - rat (male/female) - 7.1 mg/L air.

Dermal: LD50 - rabbit - 500 - 1 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of the vapour may cause lung oedema. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - *Oncorhynchus mykiss* (previous name: *Salmo gairdneri*) - 85 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - > 130 mg/L - 48 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 45 mg/L - 72 h.

Toxicity to microorganisms: EC50 - *Pseudomonas putida* - 270 mg/L - 17 h.

Persistence and degradability

AEROBIC: Methacrylic acid was rapidly biodegraded in tests using adapted activated sludge inoculum under aerobic conditions(1). Aerobic standard dilution tests using sewage inoculum provided 53% theoretical BOD after 5 days incubation(2), 68% COD after 19 days(3) and 86% theoretical COD after 42 days(3). The BOD5/COD ratio for methacrylic acid was determined to be 0.16, which is indicative of significant potential for biodegradability(4). In a Closed Bottle test, methacrylic acid was determined to be 86% degraded after 28 days and >95% methacrylic acid was degraded in the Zahn-Wellens test, time not specified(5).

Bioaccumulative potential

An estimated BCF of 3.1 was calculated for methacrylic acid(SRC), using a log Kow of 0.93(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

An average Koc value of 15 has been reported for methacrylic acid(1). According to a classification scheme(2), this Koc value suggests that methacrylic acid is expected to have very high mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN2531 (For reference only, please check.)

IMDG: UN2531 (For reference only, please check.)

IATA: UN2531 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: METHACRYLIC ACID, STABILIZED (For reference only, please check.)

IMDG: METHACRYLIC ACID, STABILIZED (For reference only, please check.)

IATA: METHACRYLIC ACID, STABILIZED (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)

IMDG: 8 (For reference only, please check.)

IATA: 8 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

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

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:
http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website:
<http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical

effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered. An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any