

Chemical Safety Data Sheet MSDS / SDS

Ethyl methacrylate 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: Ethyl methacrylate

CAS: 97-63-2

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

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

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

Flammable liquids, Category 2

Skin irritation, Category 2

Eye irritation, Category 2
Skin sensitization, Category 1
Specific target organ toxicity - single exposure, Category 3

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H319 Causes serious eye irritation
H317 May cause an allergic skin reaction
H335 May cause respiratory irritation

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P264 Wash ... thoroughly after handling.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P321 Specific treatment (see ... on this label).
P332+P317 If skin irritation occurs: Get medical help.

P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P317 If skin irritation or rash occurs: Get medical help.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P319 Get medical help if you feel unwell.

Storage

P403+P235 Store in a well-ventilated place. Keep cool.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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:	Ethyl methacrylate
Common names and synonyms:	Ethyl methacrylate
CAS number:	97-63-2
EC number:	202-597-5
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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. Give one or two glasses of water to drink. Do NOT induce vomiting. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Inhalation may cause irritation of the mucous membrane. Ingestion causes irritation of mouth and stomach. Contact with liquid irritates eyes and skin. (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. Esters 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 areas may explode when exposed to fire. Containers may explode in fire. Storage containers and parts of containers may rocket great distances, in many directions. If material 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.

Specific hazards arising from the chemical

Behavior in Fire: Sealed containers may rupture explosively if hot. Heat can cause a violent polymerization reaction with rapid

release of energy. Vapors are heavier than air and can travel to a source of ignition and flash back. (USCG, 1999)

Special protective actions for fire-fighters

Use powder, AFFF, foam, 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

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Remove all ignition sources. Evacuate danger area! Consult an expert! Personal protection: chemical protection suit and filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

SRP: Wastewater from contaminant suppression, cleaning of protective clothing/equipment, or contaminated sites should be contained and evaluated for subject chemical or decomposition product concentrations. Concentrations shall be lower than applicable environmental discharge or disposal criteria. Alternatively, pretreatment and/or discharge to a permitted wastewater treatment facility is acceptable only after review by the governing authority and assurance that "pass through" violations will not occur. Due consideration shall be given to remediation worker exposure (inhalation, dermal and ingestion) as well as fate during treatment, transfer and disposal. If it is not practicable to manage the chemical in this fashion, it must be evaluated in accordance with EPA 40 CFR Part 261, specifically Subpart B, in order to determine the appropriate local, state and federal requirements for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames, NO sparks and NO smoking. NO contact with strong oxidizing agents. Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. 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

Fireproof. Separated from strong oxidants. Cool. Keep in the dark. Store only if stabilized. 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). Sources of ignition, such as smoking and open flames, are prohibited where ethyl methacrylate is handled, used, or stored. Metal containers involving the transfer of 5 gallons or more of ethyl methacrylate should be grounded and bonded. Drums must be equipped with self-closing valves, pressure vacuum bungs, and flame arresters. Use only nonsparking tools and equipment, especially when opening and closing containers of ethyl methacrylate.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK sensitization of skin (SH)

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 safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective clothing. Protective gloves.

Respiratory protection

Use ventilation. Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Ethyl methacrylate is a colorless moderately toxic liquid with an acrid odor. Flash point of 70°F. Boiling point 278°F. Vapors irritate the eyes and respiratory system. Less dense than water. Not soluble in water. Used to make polymers and other chemicals.
Colour:	Colorless, liquid
Odour:	Acrid odor
Melting point/freezing point:	-75°C
Boiling point or initial boiling point and boiling range:	118-119°C(lit.)
Flammability:	Highly flammable.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 1.8% by volume
Flash point:	19°C
Auto-ignition temperature:	771°F
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	0.92 mPa (cP)
Solubility:	5 to 10 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 1.94

Vapour pressure:	15 mm Hg (20 °C)
Density and/or relative density:	0.917g/mL at 25°C (lit.)
Relative vapour density:	>3.9 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

The substance may violently polymerize due to warming, under the influence of light and on contact with strong oxidants.

Chemical stability

no data available

Possibility of hazardous reactions

A very dangerous fire and explosion hazard when exposed to heat, sparks, or flame; can react with oxidizing materials. The vapour mixes well with air, explosive mixtures are easily formed. Vapours are uninhibited and may polymerize, causing blockage of vents. May polymerize if heated for prolonged periods or accidentally contaminated. If polymerization takes place inside a container, the container may violently rupture. Can react with oxidizing materials. When heated to decomposition it emits irritating fumes and acrid smoke [Sax, 9th ed., 1996, p. 1576].

Conditions to avoid

no data available

Incompatible materials

Forms explosive mixture with air. Incompatible with strong acids, amines, oxidizers. Corrodes some metals.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 14,800 mg/kg

Inhalation: LC50 Rat inhalation 8300 ppm/4 hr

Dermal: no data available

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

Lachrymation. The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact may cause skin sensitization.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: flow-through; Concentration: 100 mg/L for 96 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (water flea); Conditions: flow-through; Concentration: >66 mg/L for 48 hr; Effect: Immobilization

Toxicity to algae: EC50; Species: *Pseudokirchneriella subcapitata* (algae); Conditions: static, closed vessel; Concentration: >110 mg/L for 72 hr; Effect: growth rate

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: In a Closed Bottle test, ethyl methacrylate released 69% of theoretical carbon dioxide evolution after 28 days(1). Ethyl methacrylate has been listed as being "well biodegradable" in the Japanese MITI test which utilizes 100 ppm test compound incubated at 25 deg C for 2 weeks in activated sludge at 30 ppm(2). Ethyl methacrylate was found to biodegrade 79% in 28 days using the OECD 301D method, classifying it as readily biodegradable(3).

Bioaccumulative potential

An estimated BCF of 9 was calculated in fish for ethyl methacrylate(SRC), using a log Kow of 1.94(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

Using a structure estimation method based on molecular connectivity indices(1), the Koc of ethyl methacrylate can be estimated to be 17(SRC). According to a classification scheme(2), this estimated Koc value suggests that ethyl acrylate 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: UN2277 (For reference only, please check.)

IMDG: UN2277 (For reference only, please check.)

IATA: UN2277 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: ETHYL METHACRYLATE, STABILIZED (For reference only, please check.)

IMDG: ETHYL METHACRYLATE, STABILIZED (For reference only, please check.)

IATA: ETHYL METHACRYLATE, STABILIZED (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (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

An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Do NOT take working clothes home.

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