

## Chemical Safety Data Sheet MSDS / SDS

## Methyl acetoacetate SDS

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

Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8
Section 9	Section 10	Section 11	Section 12	Section 13	Section 14	Section 15	Section 16

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

Product name: Methyl acetoacetate

CAS: 105-45-3

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

Relevant identified uses: For R&amp;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**

Eye irritation, Category 2

## GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H319 Causes serious eye irritation

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

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

Response

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

none

Disposal

none

Other hazards which do not result in classification

no data available

## SECTION 3: Composition/information on ingredients

Substance

Chemical name: Methyl acetoacetate

Common names and synonyms: Methyl acetoacetate

CAS number: 105-45-3  
EC number: 203-299-8  
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 skin with plenty of water or shower.

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

##### **Most important symptoms/effects, acute and delayed**

May be harmful by inhalation, ingestion, or skin absorption. Causes eye irritation. May cause skin irritation. (USCG, 1999)

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

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if needed. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with normal saline during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool . Cover skin burns with dry sterile dressings after decontamination . Poison A and B

#### **SECTION 5: Firefighting measures**

##### **Suitable extinguishing media**

Use/ foam, carbon dioxide, dry chemical.

### **Specific hazards arising from the chemical**

Excerpt from ERG Guide 128 [Flammable Liquids (Water-Immiscible)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. Substance may be transported hot. For hybrid vehicles, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. If molten aluminum is involved, refer to ERG Guide 169. (ERG, 2016)

### **Special protective actions for fire-fighters**

Use alcohol-resistant foam, powder, carbon dioxide.

## **SECTION 6: Accidental release measures**

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

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

### **Environmental precautions**

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

### **Methods and materials for containment and cleaning up**

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## **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 oxidants.

**SECTION 8: Exposure controls/personal protection**

**Control parameters**

**Occupational Exposure limit values**

no data available

**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.

**Skin protection**

Protective gloves.

**Respiratory protection**

Use ventilation, local exhaust or breathing protection.

**Thermal hazards**

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Methyl acetoacetate is a clear colorless liquid. Flash point 158°F. Denser than water and slightly soluble in water. Vapors heavier than air.
Colour:	Colorless liquid
Odour:	Agreeable odor
Melting point/freezing point:	-80°C
Boiling point or initial boiling point and boiling range:	169-170°C
Flammability:	Combustible.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	67°C
Auto-ignition temperature:	536° F (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	1.704 cPa at 20 deg C
Solubility:	Soluble in 2 parts water; miscible with alcohol and ether
Partition coefficient n-octanol/water:	log Kow = -0.69 /Estimated/
Vapour pressure:	1.54mmHg at 25°C
Density and/or relative density:	1.077

Relative vapour density:	4.0 (Air= 1)
Particle characteristics:	no data available

## SECTION 10: Stability and reactivity

### Reactivity

Decomposes on burning. This produces irritating fumes. Reacts with oxidants.

### Chemical stability

MAA and EAA are stable liquids

### Possibility of hazardous reactions

**FIRE HAZARD:** Moderate, when exposed to heat or flame. METHYL ACETOACETATE is an ester. Esters react with acids to liberate heat along with alcohols and acids. Strong oxidizing acids may cause a vigorous reaction that is sufficiently exothermic to ignite the reaction products. Heat is also generated by the interaction of esters with caustic solutions. Flammable hydrogen is generated by mixing esters with alkali metals and hydrides

### Conditions to avoid

no data available

### Incompatible materials

no data available

### Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes

## SECTION 11: Toxicological information

### Acute toxicity

Oral: LD50 Rat oral 3.0 g/kg

Inhalation: LC50 Rat inhalation >6.6 mg/L/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**

The substance is irritating to the eyes and respiratory tract. Exposure could cause lowering of consciousness.

**STOT-repeated exposure**

no data available

**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 *Pimephales promelas* (Fathead minnow) >111.4 mg/L/96 hr; static; temperature ranged from 19-20 deg C, pH ranged from 7.7 to 8.4 and dissolved oxygen ranged from 7.8 to 9.1 mg/L.

Toxicity to daphnia and other aquatic invertebrates: EC50 *Daphnia magna* (Water flea; Acute immobilization test and reproduction) >236.9 mg/L/48 hr; static; exposure temperature ranged from 20-21 deg C, pH ranged from 7.9 to 8.3, and dissolved oxygen ranged from 8.7 to 8.9 mg/L.

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

### Persistence and degradability

AEROBIC: Methyl acetoacetate, present at 100 mg/L, reached 78% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(1). Methyl acetoacetate was degraded more than 90% in 2 days at 22 deg C using activated sludge inoculum in a Zahn-Wellens screening test(2).

### Bioaccumulative potential

An estimated BCF of 3.1 was calculated for methyl acetatoactate(SRC), using an estimated log Kow of -0.69(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 for methyl acetoacetate can be estimated to be 1.0(SRC). According to a classification scheme(2), this estimated Koc value suggests that methyl acetoacetate 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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (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**

Not 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](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/>

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