

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 26.06.2020

Version 8.12

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	805965
Product name	Methyl propyl ketone for synthesis
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	107-87-9

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

Identified uses	Chemical for synthesis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture**
Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 2, H225
Acute toxicity, Category 4, Oral, H302

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapour.

H302 Harmful if swallowed.

Precautionary statements

Prevention

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

P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P262 Do not get in eyes, on skin, or on clothing.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Danger

CAS-No. 107-87-9

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$\text{CH}_3\text{C}(\text{O})\text{CH}_2\text{CH}_2\text{CH}_3$	$\text{C}_5\text{H}_{10}\text{O}$ (Hill)
EC-No.	203-528-1	
Molar mass	86,13 g/mol	

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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Methyl propyl ketone (<= 100 %)

107-87-9 *)

Flammable liquid, Category 2, H225
Acute toxicity, Category 4, H302

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

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

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

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

4.2 Most important symptoms and effects, both acute and delayed

irritant effects, Cough, Headache, Nausea, Vomiting, Dizziness, Shortness of breath, respiratory paralysis, CNS disorders, narcosis, collapse

The following applies to ketones in general: when vapours/aerosols occur, mucosal irritations, coughing, and dyspnoea after inhalation. The absorption of large quantities leads to: CNS depression (narcosis). Repeated skin contact leads to a degreasing effect, with secondary inflammation possible. Toxic effects on the liver and kidneys cannot be excluded after high doses. The inhalation of droplets may result in the formation of oedemas in the respiratory tract.

4.3 Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Instructions for the doctor:

After swallowing of large amounts: Gastric lavage.

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Combustible.

Pay attention to flashback.

Vapours 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.

5.3 Advice for firefighters

Special protective equipment for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information

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

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 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.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on 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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

7.2 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.

Recommended storage temperature see product label.

7.3 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

8.1 Control parameters

8.2 Exposure controls

Engineering measures

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

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

splash contact:

Glove material:	butyl-rubber
Glove thickness:	0,7 mm
Break through time:	> 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

Other protective equipment

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

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

The entrepreneur 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.

Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	aromatic
Odour Threshold	7,5 ppm
pH	No information available.
Melting point	-78 °C
Boiling point/boiling range	101 - 103 °C at 1.013 hPa
Flash point	7 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1,5 %(V)
Upper explosion limit	8,2 %(V)
Vapour pressure	37 hPa at 20 °C 157 hPa at 50 °C

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

Relative vapour density	2,9
Density	0,81 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	43 g/l at 25 °C
Partition coefficient: n-octanol/water	log Pow: 0,91 (experimental) (Lit.) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	0,5 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature 449 °C

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Violent reactions possible with:

Oxidizing agents, Reducing agents, halogen-halogen compounds

10.4 Conditions to avoid

Warming.

10.5 Incompatible materials

rubber, various plastics

10.6 Hazardous decomposition products

no information available

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.
Product name

805965
Methyl propyl ketone for synthesis

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 1.600 mg/kg

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

(RTECS)

Acute inhalation toxicity

LCLO Rat: 7,16 mg/l; 4 h

(RTECS)

Symptoms: mucosal irritations, Cough, Shortness of breath

Acute dermal toxicity

LD50 Rabbit: 6.500 mg/kg

(RTECS)

Skin irritation

Rabbit

Result: slight irritation

(External MSDS)

Eye irritation

Rabbit

Result: slight irritation

(External MSDS)

Sensitisation

This information is not available.

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

11.2 Further information

After absorption of large quantities:

Headache, Nausea, Vomiting, Dizziness, CNS disorders, drop in blood pressure, respiratory paralysis, narcosis, collapse

Effect potentiated by: ethanol

Toxic effect on:

Liver, Kidney, Cardiac

The following applies to ketones in general: when vapours/aerosols occur, mucosal irritations, coughing, and dyspnoea after inhalation. The absorption of large quantities leads to: CNS depression (narcosis). Repeated skin contact leads to a degreasing effect, with secondary inflammation possible. Toxic effects on the liver and kidneys cannot be excluded after high doses. The inhalation of droplets may result in the formation of oedemas in the respiratory tract.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 1.240 mg/l; 96 h
(ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia (water flea): > 810 mg/l; 96 h
(External MSDS)

12.2 Persistence and degradability

Biodegradability

76,6 %; 5 d

(External MSDS)

Readily biodegradable

Biochemical Oxygen Demand (BOD)

1.380 mg/g (5 d)

(External MSDS)

Theoretical oxygen demand (ThOD)

2.600 mg/g

(External MSDS)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0,91

(experimental)

(Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

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

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 1249
14.2 Proper shipping name	METHYL PROPYL KETONE
14.3 Class	3
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 1249
14.2 Proper shipping name	METHYL PROPYL KETONE
14.3 Class	3
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 1249
14.2 Proper shipping name	METHYL PROPYL KETONE
14.3 Class	3
14.4 Packing group	II
14.5 Environmentally hazardous	--

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

14.6 Special precautions for user yes

EmS F-E S-D

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard SEVESO III
Legislation FLAMMABLE LIQUIDS
P5c
Quantity 1: 5.000 t
Quantity 2: 50.000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 3

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 805965
Product name Methyl propyl ketone for synthesis

SECTION 16. Other information

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

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.

Precautionary statements

Prevention

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

P240 Ground/bond container and receiving equipment.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

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.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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