

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 1 of 11

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

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

REACH Registration Number: 01-2119457290-43-XXXX
CAS No: 78-93-3
Index No: 606-002-00-3
EC No: 201-159-0

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Laboratory chemical

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Flam. Liq. 2; H225
Eye Irrit. 2; H319
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008****Signal word:** Danger**Pictograms:****Hazard statements**

H225 Highly flammable liquid and vapour.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 2 of 11

H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Special labelling of certain mixtures

EUH066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

Sum formula: C₄H₈O
Molecular weight: 72,11 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
78-93-3	butanone			100 %
	201-159-0	606-002-00-3	01-2119457290-43-XXXX	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			

Full text of H and EUH statements: see section 16.

Further Information

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 = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

Provide fresh air.
Call a physician immediately.

After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.
Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Observe risk of aspiration if vomiting occurs.
Call a physician immediately.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 3 of 11

4.2. Most important symptoms and effects, both acute and delayed

Irritant, Cough
Dyspnoea, Dizziness
May cause drowsiness or dizziness.
Narcotic effects, Inebriation
Vomiting, Gastrointestinal complaints
Repeated exposure may cause skin dryness or cracking.
Liver and kidney damage

4.3. Indication of any immediate medical attention and special treatment needed

Give sodium sulfate as laxative (1 tablespoon in 1 glass of water) with plenty of activated coal.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Water spray jet, Carbon dioxide (CO₂), Foam, Extinguishing powder.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquid.
Vapours are heavier than air, spread along floors and form explosive mixtures with air.
Hazardous combustion products
Beware of reignition.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Keep away from sources of ignition - No smoking.
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).
Take action to prevent static discharges.

For non-emergency personnel

Provide adequate ventilation.
Use personal protection equipment.
Avoid contact with skin, eyes and clothes.
Remove persons to safety.
Emergency procedures
Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.
The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 4 of 11

Danger of explosion

6.3. Methods and material for containment and cleaning up

For containment

- Cover drains.
- Prevent spread over a wide area (e.g. by containment or oil barriers).
- Collect in closed and suitable containers for disposal.
- Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

- Clean contaminated articles and floor according to the environmental legislation.

Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

- Read label before use. Handle and open container with care.
- When using do not eat, drink, smoke, sniff. Keep container tightly closed.
- Use personal protection equipment. Use extractor hood (laboratory).
- Do not breathe gas/fumes/vapour/spray. Provide adequate ventilation.

Advice on protection against fire and explosion

- Take action to prevent static discharges. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on general occupational hygiene

- Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Further information on handling

- Take off immediately all contaminated clothing and wash it before reuse.
- Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

- Keep in a cool, well-ventilated place.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints on joint storage

- Do not store together with: Oxidising agent. Pyrophoric or self-heating substances.

Further information on storage conditions

- Keep container tightly closed and dry.
- storage temperature: +5°C - +30°C
- Protect against: Light, Air

7.3. Specific end use(s)

- Laboratory use Laboratory chemical

SECTION 8: Exposure controls/personal protection

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 5 of 11

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
78-93-3	Methyl ethyl ketone (MEK) (Butan-2-one)	200	600		TWA (8 h)	
		300	900		STEL (15 min)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
78-93-3	Butan-2-one	Butan-2-one	70 µmol/L	Urine	Post shift

DNEL/DMEL values

CAS No	Substance	DNEL type	Exposure route	Effect	Value
78-93-3	butanone				
		Worker DNEL, long-term	inhalation	systemic	600 mg/m ³
		Worker DNEL, long-term	dermal	systemic	1161 mg/kg bw/day
		Consumer DNEL, long-term	inhalation	systemic	106 mg/m ³
		Consumer DNEL, long-term	dermal	systemic	412 mg/kg bw/day
		Consumer DNEL, long-term	oral	systemic	31 mg/kg bw/day

PNEC values

CAS No	Substance	Environmental compartment	Value
78-93-3	butanone		
		Freshwater	55,8 mg/l
		Freshwater (intermittent releases)	55,8 mg/l
		Marine water	55,8 mg/l
		Freshwater sediment	284,74 mg/kg
		Marine sediment	284,7 mg/kg
		Secondary poisoning	1000 mg/kg
		Micro-organisms in sewage treatment plants (STP)	709 mg/l
		Soil	22,5 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection: goggles.

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact: No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 6 of 11

By short-term hand contact
Trade name/designation: KCL 897 Butoject®
Suitable material: Butyl caoutchouc (butyl rubber) 0,3 mm
Wearing time with occasional contact (splashes): > 240 min

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).

Skin protection

Flame-retardant protective clothing. Wear anti-static footwear and clothing

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device with filter or ventilator filtering device of type: A

Environmental exposure controls

The vapour of the product is heavier than air and may accumulate below ground level, in pits, channels and basements in higher concentration.
Danger of explosion

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	colourless
Odour:	like: Solvent
Odour threshold:	No data available
Melting point/freezing point:	-86 °C
Boiling point or initial boiling point and boiling range:	79 °C
Flammability:	not applicable
Lower explosion limits:	1,8 vol. %
Upper explosion limits:	11,5 vol. %
Flash point:	-4 °C
Auto-ignition temperature:	514 °C
Decomposition temperature:	not determined
pH-Value (at 20 °C):	neutral
Viscosity / kinematic:	No data available
Water solubility: (at 20 °C)	292 g/L
Solubility in other solvents	No data available
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	log Pow: 0,29
Dispersion stability:	No data available
Vapour pressure: (at 20 °C)	105 hPa
Vapour pressure:	No data available
Density (at 20 °C):	0,804 g/cm ³
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	not determined

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 7 of 11

Particle characteristics: No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Vapours can form explosive mixtures with air.

Sustaining combustion:

Sustaining combustion

Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:

not determined

Solvent separation test:

No data available

Solvent content:

100%

Solid content:

not determined

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

0,4 mPa·s

(at 20 °C)

Flow time:

No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Vapours can form explosive mixtures with air.

10.2. Chemical stability

Protect against: Light, Air

10.3. Possibility of hazardous reactions

Oxidising agent

Hydrogen peroxide

Nitric acid

Sulphuric acid, concentrated

10.4. Conditions to avoid

Heat

Light

Air

10.5. Incompatible materials

plastic

10.6. Hazardous decomposition products

Peroxides

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 8 of 11

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Based on available data, the classification criteria are not met.

Irritation to respiratory tract

Pulmonary oedema

Pneumonia

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Repeated exposure may cause skin dryness or cracking.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause drowsiness or dizziness. (butanone)

STOT-repeated exposure

Repeated exposure may cause skin dryness or cracking.

Aspiration hazard

Based on available data, the classification criteria are not met.

Observe risk of aspiration if vomiting occurs.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

No data available

Further information

Irritant, Cough

Dyspnoea, Dizziness

May cause drowsiness or dizziness.

Narcotic effects, Inebriation

Vomiting, Gastrointestinal complaints

Liver and kidney damage

SECTION 12: Ecological information

12.1. Toxicity

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 9 of 11

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
78-93-3	butanone					
	Acute fish toxicity	LC50 mg/l	2993	96 h	Pimephales promelas	Study report (1998) OECD Guideline 203
	Acute algae toxicity	ErC50 mg/l	2029	96 h	Pseudokirchneriella subcapitata	Study report (1998) OECD Guideline 201
	Acute crustacea toxicity	EC50	308 mg/l	48 h	Daphnia magna	Study report (1998) OECD Guideline 202

12.2. Persistence and degradability

Readily biodegradable (according to OECD criteria).

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
78-93-3	butanone	0,3

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Do not empty into drains.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not allow to enter into surface water or drains.

Do not mix with other wastes.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1193
14.2. UN proper shipping name:	ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 10 of 11

Excepted quantity: E2
 Transport category: 2
 Hazard No: 33
 Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1193
14.2. UN proper shipping name: ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3
 Classification code: F1
 Limited quantity: 1 L
 Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1193
14.2. UN proper shipping name: ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3
 Special Provisions: -
 Limited quantity: 1 L
 Excepted quantity: E2
 EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1193
14.2. UN proper shipping name: ETHYL METHYL KETONE
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3
 Limited quantity Passenger: 1 L
 Passenger LQ: Y341
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 353
 IATA-max. quantity - Passenger: 5 L
 IATA-packing instructions - Cargo: 364
 IATA-max. quantity - Cargo: 60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Combustible liquid.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

Information according to 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

National regulatory information

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Methyl ethyl ketone > 99 % (MEK, 2-butanone, ethyl methyl ketone) technical grade

Revision date: 04.09.2023

Product code: 28069

Page 11 of 11

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 1 - slightly hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 9,11,12,13.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
Flam. Liq: Flammable liquid
Eye Irrit: Eye irritation
STOT SE: Specific target organ toxicity - single exposure

Relevant H and EUH statements (number and full text)

H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
EUH066 Repeated exposure may cause skin dryness or cracking.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.
The receiver of our product is singularly responsible for adhering to existing laws and regulations.