

# SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended 2015/830.

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Product name:** Methyl Ethyl Ketone

**Product No.** 8052

#### Additional identification

**Chemical name:** Methyl ethyl ketone

**Chemical formula:** C<sub>4</sub>H<sub>8</sub>O

**INDEX No.** 606-002-00-3

**CAS-No.** 78-93-3

**EC No.** 201-159-0

**REACH Registration No.**

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

**Identified uses:** For Laboratory, Research or Manufacturing Use. For Laboratory, Research or Manufacturing Use.

**Uses advised against:** Not determined.

### 1.3 Details of the supplier of the safety data sheet

Avantor Performance Materials Poland S.A.  
Sowinskiego 11str., 44-101 Gliwice,  
Poland

**Telephone:** 48 32 239-20-00  
**Fax:** 48 32 239-23-70

**Contact person:** Product Information Compliance

**E-mail:** export@avantormaterials.com

E-mail address of person responsible for this SDS: SDS@avantormaterials.com

### 1.4 Emergency telephone number: CHEMTREC: (44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

#### Physical Hazards

Flammable liquids	Category 2	H225: Highly flammable liquid and vapour.
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#### Health Hazards

Serious eye irritation	Category 2	H319: Causes serious eye irritation.
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Specific Target Organ Toxicity - Single Exposure	Category 3	H336: May cause drowsiness or dizziness.
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### 2.2 Label Elements

**Contains:** Methyl ethyl ketone



**Signal Word:** Danger

**Hazard Statement(s):** H225: Highly flammable liquid and vapour.  
H319: Causes serious eye irritation.  
H336: May cause drowsiness or dizziness.

**Target organs:**  
Methyl ethyl ketone narcotic effects

**Precautionary Statements**

**Prevention:** P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264: Wash thoroughly after handling.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response:** P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312: Call a POISON CENTRE/doctor if you feel unwell.  
P337+P313: If eye irritation persists: Get medical advice/attention.

**Supplemental label information**

EUH066: Repeated exposure may cause skin dryness or cracking.

**2.3 Other hazards** No data available.

**SECTION 3: Composition/information on ingredients**

**3.1 Substances**

Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Methyl ethyl ketone	50 - <100%	78-93-3	201-159-0	No data available.	No data available.	#

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

# This substance has workplace exposure limit(s).

**SECTION 4: First Aid Measures**

**General:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

**4.1 Description of first aid measures**

**Inhalation:** Move to fresh air. Get medical attention if symptoms persist. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.

<b>Skin Contact:</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation persists after washing. Wash contaminated clothing before re-use. Destroy or thoroughly clean contaminated shoes.
<b>Eye contact:</b>	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.
<b>Ingestion:</b>	Get medical attention if symptoms occur. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
<b>4.2 Most important symptoms and effects, both acute and delayed:</b>	Irritating to eyes, respiratory system and skin.
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	
<b>Hazards:</b>	No data available.
<b>Treatment:</b>	Treat symptomatically. Symptoms may be delayed.

## SECTION 5: Firefighting Measures

<b>General Fire Hazards:</b>	Highly flammable liquid and vapour. In case of fire and/or explosion do not breathe fumes.
<b>5.1 Extinguishing media</b>	
<b>Suitable extinguishing media:</b>	Water spray, foam, dry powder or carbon dioxide.
<b>Unsuitable extinguishing media:</b>	Avoid water in straight hose stream; will scatter and spread fire.
<b>5.2 Special hazards arising from the substance or mixture:</b>	Vapours may cause a flash fire or ignite explosively. Vapours may travel considerable distance to a source of ignition and flash back. Heat may cause the containers to explode.
<b>5.3 Advice for firefighters</b>	
<b>Special fire fighting procedures:</b>	Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting the fire. Fight fire from a protected location. Move containers from fire area if you can do so without risk.
<b>Special protective equipment for firefighters:</b>	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## SECTION 6: Accidental Release Measures

<b>6.1 Personal precautions, protective equipment and emergency procedures:</b>	Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Keep unauthorised personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
<b>6.2 Environmental Precautions:</b>	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or on to the ground.

**6.3 Methods and material for containment and cleaning up:**

In case of leakage, eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dyke far ahead of larger spill for later recovery and disposal. Use non-sparking tools. All equipment used when handling the product must be grounded.

**6.4 Reference to other sections:**

No data available.

**SECTION 7: Handling and Storage:**
**7.1 Precautions for safe handling:**

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Use personal protective equipment as required. Avoid breathing mists or vapours. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment. Ground and bond container and receiving equipment. Avoid contact with eyes. Avoid contact with skin. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof [electrical/ventilating/lighting] equipment. Use non-sparking tools. Take action to prevent static discharges. Do not breathe dust/fume/gas/mist/vapours/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wash contaminated clothing before reuse.

**7.2 Conditions for safe storage, including any incompatibilities:**

Keep away from food, drink and animal feeding stuffs. Keep containers tightly closed. Keep in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

**7.3 Specific end use(s):**

No data available.

**SECTION 8: Exposure Controls/Personal Protection**
**8.1 Control Parameters**
**Occupational Exposure Limits**

Chemical name	Type	Exposure Limit Values	Source
Methyl ethyl ketone	TWA	200 ppm 600 mg/m <sup>3</sup>	UK. EH40 Workplace Exposure Limits (WELs) (2007)
	STEL	300 ppm 899 mg/m <sup>3</sup>	UK. EH40 Workplace Exposure Limits (WELs) (2007)
	TWA	200 ppm 600 mg/m <sup>3</sup>	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)
	STEL	300 ppm 900 mg/m <sup>3</sup>	EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (12 2009)
	TWA	200 ppm 600 mg/m <sup>3</sup>	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL (2014)
	STEL	300 ppm	EU. Scientific Committee on Occupational Exposure Limit Values (SCOELs), European Commission - SCOEL (2014)

## Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Methyl ethyl ketone (Butan-2-one: Sampling time: End of shift.)	70 umol/L (Urine)	UKEH40BMGV (12 2011)

## DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
Methyl ethyl ketone	General population	Eyes	Local effect; 600 mg/m <sup>3</sup> 31 mg/kg bw/day	No data available

## PNEC-Values

Critical component	Environmental compartment	PNEC-Values
Methyl ethyl ketone	Aquatic (freshwater)	55,8 mg/l
	Sewage treatment plant	709 mg/l
	Aquatic (marine water)	55,8 mg/l
	Sediment (marine water)	284,7 mg/kg
	Predator	1000 mg/kg
	Sediment (freshwater)	284,74 mg/kg
	Soil	22,5 mg/kg

## 8.2 Exposure controls

**Appropriate Engineering Controls:** No data available.

### Individual protection measures, such as personal protective equipment

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

#### Skin protection

**Hand Protection:** Material: Chemical resistant gloves

**Other:** Wear suitable protective clothing.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator. Chemical respirator with organic vapour cartridge and full facepiece.

**Hygiene measures:** Provide eyewash station and safety shower. Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product. Do not eat, drink or smoke when using the product. Wash contaminated clothing before re-use. Avoid contact with eyes, skin, and clothing.

**Environmental Controls:** No data available.

## SECTION 9: Physical And Chemical Properties

### 9.1 Information on basic physical and chemical properties

**Appearance**

<b>Physical state:</b>	Liquid
<b>Form:</b>	Liquid
<b>Colour:</b>	Colorless
<b>Odour:</b>	Characteristic
<b>Odour Threshold:</b>	No data available.
<b>pH:</b>	No data available.
<b>Freezing point:</b>	-86,64 °C
<b>Boiling Point:</b>	79,59 °C
<b>Flash Point:</b>	-9 °C (Closed Cup)
<b>Evaporation Rate:</b>	2,7 ether=1
<b>Flammability (solid, gas):</b>	Class IB Flammable Liquid
<b>Flammability limit - upper (%):</b>	10 - 12 %(V)
<b>Flammability limit - lower (%):</b>	1,8 %(V)
<b>Vapour pressure:</b>	12,08 - 12,6 kPa (25 °C)
<b>Vapour density (air=1):</b>	2,41 Air=1
<b>Density:</b>	0,81 g/ml (20 °C)
<b>Relative density:</b>	0,805 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in Water:</b>	280 g/l (20 °C)
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	0,29
<b>Autoignition Temperature:</b>	404 °C
<b>Decomposition Temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.
<b>Explosive properties:</b>	No data available.
<b>Oxidising Properties:</b>	No data available.

**9.2 Other information**

<b>Molecular weight:</b>	72,11 g/mol (C <sub>4</sub> H <sub>8</sub> O)
<b>VOC content:</b>	EC Directive 2004/42: 810 g/l ~100 % (calculated)
<b>Minimum ignition energy:</b>	0,53 mJ

<b>SECTION 10: Stability and Reactivity</b>
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<b>10.1 Reactivity:</b>	No dangerous reaction known under conditions of normal use.
<b>10.2 Chemical Stability:</b>	Material is stable under normal conditions.
<b>10.3 Possibility of Hazardous Reactions:</b>	Hazardous polymerization does not occur.
<b>10.4 Conditions to Avoid:</b>	Heat, sparks, flames. Contact with incompatible materials.
<b>10.5 Incompatible Materials:</b>	Strong oxidising agents. Strong bases. Caustics. Amines.
<b>10.6 Hazardous Decomposition Products:</b>	Oxides of Carbon.

<b>SECTION 11: Toxicological Information</b>
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**Information on likely routes of exposure**

<b>Inhalation:</b>	Harmful if inhaled.
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**Skin Contact:** None known or expected under normal use.

**Eye contact:** Causes serious eye irritation.

**Ingestion:** None known or expected under normal use.

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Oral

**Product:** LD 50 (Rat): 2.054 - 3.500 mg/kg

##### Dermal

**Product:** LD 50 (Rabbit) > 8.000 mg/kg

##### Inhalation

**Product:** LC 50 (Rat, 4 h): 11700 ppm

#### Repeated dose toxicity

**Product:** No data available.

#### Skin Corrosion/Irritation:

**Product:** May cause skin irritation.

#### Serious Eye Damage/Eye Irritation:

**Product:** Causes serious eye irritation.

#### Respiratory or Skin Sensitisation:

**Product:** Not a skin nor a respiratory sensitizer.

#### Germ Cell Mutagenicity

##### In vitro

**Product:** No mutagenic components identified

##### In vivo

**Product:** No mutagenic components identified

#### Carcinogenicity

**Product:** This substance has no evidence of carcinogenic properties.

#### Reproductive toxicity

**Product:** No components toxic to reproduction

#### Specific Target Organ Toxicity - Single Exposure

**Product:** May cause respiratory irritation. May cause drowsiness or dizziness.

#### Specific Target Organ Toxicity - Repeated Exposure

**Product:** No data available.

#### Target organs:

Methyl ethyl ketone                      narcotic effects

#### Aspiration Hazard

**Product:** May be harmful if swallowed and enters airways.

## SECTION 12: Ecological Information

### 12.1 Toxicity

#### Acute toxicity

##### Fish

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 2.993 - 3.320 mg/l  
LC 50 (Western mosquitofish (*Gambusia affinis*), 96 h): 5.600 mg/l  
NOAEL (Fathead minnow (*Pimephales promelas*), 96 h): 1.170 mg/l

##### Aquatic Invertebrates

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone EC 50 (Water flea (*Daphnia magna*), 48 h): 4.025 - 6.440 mg/l  
LC 50 (Water flea (*Daphnia magna*), 48 h): > 520 mg/l  
NOAEL (Water flea (*Daphnia magna*), 48 h): 68 mg/l

#### Chronic toxicity

##### Fish

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone No data available.

##### Aquatic Invertebrates

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone No data available.

##### Toxicity to aquatic plants

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone No data available.

### 12.2 Persistence and Degradability

#### Biodegradation

**Product:** Expected to be readily biodegradable.

##### Specified substance(s)

Methyl ethyl ketone No data available.

#### BOD/COD Ratio

**Product:** No data available.

##### Specified substance(s)

Methyl ethyl ketone No data available.

### 12.3 Bioaccumulative Potential

**Product:** No data available on bioaccumulation.

##### Specified substance(s)

Methyl ethyl ketone No data available.



- 12.4 Mobility in Soil:** The product is water soluble and may spread in water systems.  
**Known or predicted distribution to environmental compartments**  
 Methyl ethyl ketone No data available.
- 12.5 Results of PBT and vPvB assessment:** Not available.  
 Methyl ethyl ketone No data available.
- 12.6 Other Adverse Effects:** The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
- 12.7 Additional Information:** No data available.

## SECTION 13: Disposal Considerations

### 13.1 Waste treatment methods

- General information:** No data available.
- Disposal methods:** Discharge, treatment, or disposal may be subject to national, state, or local laws. 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.

## SECTION 14: Transport Information

### ADR

- 14.1 UN Number: UN 1193  
 14.2 UN Proper Shipping Name: ETHYL METHYL KETONE  
 14.3 Transport Hazard Class(es)  
 Class: 3  
 Label(s): 3  
 Hazard No. (ADR): 33  
 Tunnel restriction code: (D/E)  
 14.4 Packing Group: II  
 14.5 Environmental Hazards: No  
 14.6 Special precautions for user: Not determined.

### RID

- 14.1 UN Number: UN 1193  
 14.2 UN Proper Shipping Name: ETHYL METHYL KETONE  
 14.3 Transport Hazard Class(es)  
 Class: 3  
 Label(s): 3  
 14.4 Packing Group: II  
 14.5 Environmental Hazards: No  
 14.6 Special precautions for user: Not determined.

### IMDG

14.1 UN Number: UN 1193  
 14.2 UN Proper Shipping Name: ETHYL METHYL KETONE  
 14.3 Transport Hazard Class(es)  
     Class: 3  
     Label(s): 3  
     EmS No.: F-E, S-D  
 14.4 Packing Group: II  
 14.5 Environmental Hazards: No  
 14.6 Special precautions for user: Not determined.

### IATA

14.1 UN Number: UN 1193  
 14.2 Proper Shipping Name: Ethyl methyl ketone  
 14.3 Transport Hazard Class(es):  
     Class: 3  
     Label(s): 3  
 14.4 Packing Group: II  
 14.5 Environmental Hazards: No  
 14.6 Special precautions for user: Not determined.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

## SECTION 15: Regulatory information

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

#### EU Regulations

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

Regulation (EC) No. 689/2008 Import and export of dangerous chemicals: none

Regulation (EC) No. 1907/2006 REACH Annex XIV Substance subject to authorisation, as amended: none

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	CAS-No.	Concentration
Methyl ethyl ketone	78-93-3	100%

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.: none

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.: none

Directive 96/82/EC (Seveso III): on the control of major accident hazards involving dangerous substances:

Chemical name	CAS-No.	Concentration
Methyl ethyl ketone	78-93-3	100%

EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:

none

**Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:**

Chemical name	CAS-No.	Concentration
Methyl ethyl ketone	78-93-3	100%

**15.2 Chemical safety assessment:** No Chemical Safety Assessment has been carried out.

**SECTION 16: Other Information**

**Revision Information:** Not relevant.

**References**

PBT PBT: persistent, bioaccumulative and toxic substance.  
 vPvB vPvB: very persistent and very bioaccumulative substance.

**Key literature references and sources for data:** No data available.

**Wording of the H-statements in sections 2 and 3**

H225 Highly flammable liquid and vapour.  
 H319 Causes serious eye irritation.  
 H336 May cause drowsiness or dizziness.

**Training information:** No data available.

**Issue Date:** 23.08.2018

**SDS No.:**

**Disclaimer:**

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