

Creation Date 17-Sep-2009

Revision Date 27-Sep-2023

Revision Number 10

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<b>Product Description:</b>	<b>4-Methyl-2-pentanone</b>
<b>Cat No. :</b>	<b>222170000; 222170010; 222170025; 222175000</b>
<b>Synonyms</b>	Isobutyl methyl ketone; Isopropylacetone; MIBK; Methyl isobutyl ketone
<b>Index No</b>	606-004-00-4
<b>CAS No</b>	108-10-1
<b>EC No</b>	203-550-1
<b>Molecular Formula</b>	C <sub>6</sub> H <sub>12</sub> O
<b>REACH registration number</b>	-

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

<b>Recommended Use</b>	Laboratory chemicals.
<b>Sector of use</b>	SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
<b>Product category</b>	PC21 - Laboratory chemicals
<b>Process categories</b>	PROC15 - Use as a laboratory reagent
<b>Environmental release category</b>	ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)
<b>Uses advised against</b>	No Information available

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

#### Company

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium

**UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road,  
Loughborough, Leicestershire LE11 5RG, United Kingdom

**Swiss distributor** - Fisher Scientific AG  
Neuhofstrasse 11, CH 4153 Reinach  
Tel: +41 (0) 56 618 41 11  
e-mail - infoch@thermofisher.com

**E-mail address** begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:  
Tox Info Suisse Emergency Number: **145 (24hr)**  
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)  
Chemtrec (24h) Toll-Free: 0800 564 402  
Chemtrec Local: +41-43 508 20 11 (Zurich)

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## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - Regulation (EC) No 1272/2008

##### Physical hazards

Flammable liquids

Category 2 (H225)

##### Health hazards

Acute Inhalation Toxicity - Vapors

Category 4 (H332)

Serious Eye Damage/Eye Irritation

Category 2 (H319)

Carcinogenicity

Category 2 (H351)

Specific target organ toxicity - (single exposure)

Category 3 (H336)

##### Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

### 2.2. Label elements



Signal Word

Danger

#### **Hazard Statements**

H225 - Highly flammable liquid and vapor

H332 - Harmful if inhaled

H319 - Causes serious eye irritation

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

EUH066 - Repeated exposure may cause skin dryness or cracking

#### **Precautionary Statements**

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P312 - Call a POISON CENTER or doctor if you feel unwell

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## 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
2-Pentanone, 4-methyl-	108-10-1	EEC No. 203-550-1	>95	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319) Acute Tox. 4 (H332) STOT SE 3 (H336) Carc. 2 (H351) [EUH066]

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
2-Pentanone, 4-methyl-	-	-	ATE = 11 mg/L (vapour)

ECHA (RAC) - Committee for Risk Assessment - European Chemicals Agency

ATE - Acute Toxicity Estimate

REACH registration number	-
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Full text of Hazard Statements: see section 16

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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

Notes to Physician	Treat symptomatically. Symptoms may be delayed.
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## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### 5.2. Special hazards arising from the substance or mixture

Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.

### 6.2. Environmental precautions

Should not be released into the environment.

### 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

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## 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Flammables area. Keep away from heat, sparks and flame.

Technical Rules for Hazardous Substances (TRGS) 510  
Storage Class (LGK) (Germany)

Class 3

Switzerland - Storage of hazardous substances

Storage class - SC 3  
<https://www.kvu.ch/de/themen/stoffe-und-produkte>  
<https://www.kvu.ch/fr/themes/substances-et-produits>  
<https://www.kvu.ch/it/temi/sostanze-e-prodotti>

## 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
2-Pentanone, 4-methyl-	TWA: 20 ppm (8h) TWA: 83 mg/m <sup>3</sup> (8h) STEL: 50 ppm (15min) STEL: 208 mg/m <sup>3</sup> (15min)	STEL: 100 ppm 15 min STEL: 416 mg/m <sup>3</sup> 15 min TWA: 50 ppm 8 hr TWA: 208 mg/m <sup>3</sup> 8 hr Skin	TWA / VME: 20 ppm (8 heures). restrictive limit TWA / VME: 83 mg/m <sup>3</sup> (8 heures). restrictive limit STEL / VLCT: 50 ppm. restrictive limit STEL / VLCT: 208 mg/m <sup>3</sup> . restrictive limit	TWA: 20 ppm 8 uren TWA: 83 mg/m <sup>3</sup> 8 uren STEL: 50 ppm 15 minuten STEL: 208 mg/m <sup>3</sup> 15 minuten	STEL / VLA-EC: 50 ppm (15 minutos). STEL / VLA-EC: 208 mg/m <sup>3</sup> (15 minutos). TWA / VLA-ED: 20 ppm (8 horas) TWA / VLA-ED: 83 mg/m <sup>3</sup> (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
2-Pentanone, 4-methyl-	TWA: 20 ppm 8 ore. Time Weighted Average TWA: 83 mg/m <sup>3</sup> 8 ore. Time Weighted Average STEL: 50 ppm 15 minuti. Short-term STEL: 208 mg/m <sup>3</sup> 15 minuti. Short-term	TWA: 20 ppm (8 Stunden). AGW - exposure factor 2 TWA: 83 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 20 ppm (8 Stunden). MAK TWA: 83 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 40 ppm Höhepunkt: 166 mg/m <sup>3</sup> Haut	STEL: 50 ppm 15 minutos STEL: 208 mg/m <sup>3</sup> 15 minutos TWA: 20 ppm 8 horas TWA: 83 mg/m <sup>3</sup> 8 horas	STEL: 208 mg/m <sup>3</sup> 15 minuten TWA: 104 mg/m <sup>3</sup> 8 uren	TWA: 20 ppm 8 tunteina TWA: 80 mg/m <sup>3</sup> 8 tunteina STEL: 50 ppm 15 minuutteina STEL: 210 mg/m <sup>3</sup> 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
2-Pentanone, 4-methyl-	Haut MAK-KZGW: 50 ppm 15 Minuten MAK-KZGW: 208 mg/m <sup>3</sup> 15 Minuten MAK-TMW: 20 ppm 8 Stunden	TWA: 20 ppm 8 timer TWA: 83 mg/m <sup>3</sup> 8 timer STEL: 208 mg/m <sup>3</sup> 15 minutter STEL: 50 ppm 15 minutter Hud	Haut/Peau STEL: 40 ppm 15 Minuten STEL: 164 mg/m <sup>3</sup> 15 Minuten TWA: 20 ppm 8 Stunden	STEL: 200 mg/m <sup>3</sup> 15 minutach TWA: 83 mg/m <sup>3</sup> 8 godzinach	TWA: 20 ppm 8 timer TWA: 83 mg/m <sup>3</sup> 8 timer STEL: 50 ppm 15 minutter. value from the regulation STEL: 208 mg/m <sup>3</sup> 15 minutter. value from the

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	MAK-TMW: 83 mg/m <sup>3</sup> 8 Stunden		TWA: 82 mg/m <sup>3</sup> 8 Stunden		regulation Hud
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Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
2-Pentanone, 4-methyl-	TWA: 50 mg/m <sup>3</sup> STEL : 200 mg/m <sup>3</sup>	TWA-GVI: 20 ppm 8 satima. TWA-GVI: 83 mg/m <sup>3</sup> 8 satima. STEL-KGVI: 50 ppm 15 minutama. STEL-KGVI: 208 mg/m <sup>3</sup> 15 minutama.	TWA: 20 ppm 8 hr. TWA: 83 mg/m <sup>3</sup> 8 hr. STEL: 50 ppm 15 min STEL: 208 mg/m <sup>3</sup> 15 min Skin	STEL: 50 ppm STEL: 208 mg/m <sup>3</sup> TWA: 20 ppm TWA: 83 mg/m <sup>3</sup>	TWA: 80 mg/m <sup>3</sup> 8 hodinách. Potential for cutaneous absorption Ceiling: 200 mg/m <sup>3</sup>

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
2-Pentanone, 4-methyl-	TWA: 20 ppm 8 tundides. TWA: 83 mg/m <sup>3</sup> 8 tundides. STEL: 50 ppm 15 minutites. STEL: 208 mg/m <sup>3</sup> 15 minutites.	TWA: 20 ppm 8 hr TWA: 83 mg/m <sup>3</sup> 8 hr STEL: 50 ppm 15 min STEL: 208 mg/m <sup>3</sup> 15 min	skin - potential for cutaneous absorption STEL: 100 ppm STEL: 410 mg/m <sup>3</sup> TWA: 100 ppm TWA: 410 mg/m <sup>3</sup>	STEL: 208 mg/m <sup>3</sup> 15 percekben. CK TWA: 83 mg/m <sup>3</sup> 8 órában. AK	STEL: 50 ppm STEL: 208 mg/m <sup>3</sup> TWA: 20 ppm 8 klukkustundum. TWA: 83 mg/m <sup>3</sup> 8 klukkustundum. Skin notation

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
2-Pentanone, 4-methyl-	STEL: 50 ppm STEL: 208 mg/m <sup>3</sup> TWA: 20 ppm TWA: 83 mg/m <sup>3</sup>	TWA: 20 ppm IPRD TWA: 83 mg/m <sup>3</sup> IPRD STEL: 50 ppm STEL: 208 mg/m <sup>3</sup>	TWA: 20 ppm 8 Stunden TWA: 83 mg/m <sup>3</sup> 8 Stunden STEL: 50 ppm 15 Minuten STEL: 208 mg/m <sup>3</sup> 15 Minuten	TWA: 20 ppm TWA: 83 mg/m <sup>3</sup> STEL: 50 ppm 15 minuti STEL: 208 mg/m <sup>3</sup> 15 minuti	TWA: 20 ppm 8 ore TWA: 83 mg/m <sup>3</sup> 8 ore STEL: 50 ppm 15 minute STEL: 208 mg/m <sup>3</sup> 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
2-Pentanone, 4-methyl-	Skin notation MAC: 5 mg/m <sup>3</sup>	Ceiling: 166 mg/m <sup>3</sup> Potential for cutaneous absorption TWA: 20 ppm TWA: 83 mg/m <sup>3</sup>	TWA: 20 ppm 8 urah TWA: 83 mg/m <sup>3</sup> 8 urah Koža STEL: 50 ppm 15 minutah STEL: 208 mg/m <sup>3</sup> 15 minutah	Binding STEL: 50 ppm 15 minuter Binding STEL: 200 mg/m <sup>3</sup> 15 minuter TLV: 20 ppm 8 timmar. NGV TLV: 83 mg/m <sup>3</sup> 8 timmar. NGV	TWA: 20 ppm 8 saat TWA: 83 mg/m <sup>3</sup> 8 saat STEL: 50 ppm 15 dakika STEL: 208 mg/m <sup>3</sup> 15 dakika

## Biological limit values

List source(s): **UK** - Biological Monitoring Guidance Values provided by the UK's Health and Safety Executive (HSE) Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended) and EH40/2005.

Component	European Union	United Kingdom	France	Spain	Germany
2-Pentanone, 4-methyl-		4-Methylpentan-2-one: 20 µmol/L urine post shift	Methylisobutylketone: 2 mg/L urine end of shift	Methyl isobutyl ketone: 1 mg/L urine end of shift	4-Methylpentan-2-one: 0.7 mg/L urine (end of shift )

Component	Gibraltar	Latvia	Slovak Republic	Luxembourg	Turkey
2-Pentanone, 4-methyl-			4-Methyl-2-pentanone: 3.5 mg/L urine end of exposure or work shift Hexone		

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography

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MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
2-Pentanone, 4-methyl-108-10-1 (>95)				DNEL = 11.8mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
2-Pentanone, 4-methyl-108-10-1 (>95)	DNEL = 208mg/m <sup>3</sup>	DNEL = 208mg/m <sup>3</sup>	DNEL = 83mg/m <sup>3</sup>	DNEL = 83mg/m <sup>3</sup>

## Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
2-Pentanone, 4-methyl-108-10-1 (>95)	PNEC = 0.6mg/L	PNEC = 8.27mg/kg sediment dw	PNEC = 1.5mg/L	PNEC = 27.5mg/L	PNEC = 1.3mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
2-Pentanone, 4-methyl-108-10-1 (>95)	PNEC = 0.06mg/L	PNEC = 0.83mg/kg sediment dw			

## 8.2. Exposure controls

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Laminated film (Barrier)	> 480 minutes	0.5 mm	EN 374	(minimum requirement)

#### Skin and body protection

Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

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<b>Large scale/emergency use</b>	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced <b>Recommended Filter type:</b> Organic gases and vapours filter Type A Brown conforming to EN14387
<b>Small scale/Laboratory use</b>	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. <b>Recommended half mask:-</b> Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted
<b>Environmental exposure controls</b>	No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	
<b>Appearance</b>	Colorless	
<b>Odor</b>	Characteristic sweet	
<b>Odor Threshold</b>	0.04 - 0.08 ppm	
<b>Melting Point/Range</b>	-84 °C / -119.2 °F	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	117.4 °C / 243.3 °F	@ 760 mmHg
<b>Flammability (liquid)</b>	Highly flammable	On basis of test data
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	<b>Lower</b> 1.4 vol% <b>Upper</b> 7.5 vol%	
<b>Flash Point</b>	14 °C / 57.2 °F	<b>Method -</b> CC (closed cup)
<b>Autoignition Temperature</b>	460 °C / 860 °F	DIN 51794
<b>Decomposition Temperature</b>	No data available	
<b>pH</b>	No information available	
<b>Viscosity</b>	No data available	
<b>Water Solubility</b>	17 g/l (20°C)	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Component</b>	<b>log Pow</b>	
2-Pentanone, 4-methyl-	1.9	
<b>Vapor Pressure</b>	21.5 mbar @ 20 °C	
<b>Density / Specific Gravity</b>	0.800	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Vapor Density</b>	3.45 (Air = 1.0)	(Air = 1.0)
<b>Particle characteristics</b>	Not applicable (liquid)	

### 9.2. Other information

<b>Molecular Formula</b>	C6 H12 O
<b>Molecular Weight</b>	100.16
<b>Explosive Properties</b>	Vapors may form explosive mixtures with air
<b>Evaporation Rate</b>	1.6 (Butyl Acetate = 1.0)

## SECTION 10: STABILITY AND REACTIVITY

<b>10.1. Reactivity</b>	None known, based on information available
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## 10.2. Chemical stability

Stable under normal conditions.

## 10.3. Possibility of hazardous reactions

### Hazardous Polymerization Hazardous Reactions

Hazardous polymerization does not occur.  
None under normal processing.

## 10.4. Conditions to avoid

Incompatible products. Heat, flames and sparks. Keep away from open flames, hot surfaces and sources of ignition.

## 10.5. Incompatible materials

Strong oxidizing agents. Peroxides.

## 10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## SECTION 11: TOXICOLOGICAL INFORMATION

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

#### Product Information

#### (a) acute toxicity;

Oral

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Pentanone, 4-methyl-	LD50 = 2080 mg/kg ( Rat )	LD50 = 3000 mg/kg ( Rabbit )	LC50 2000 - 4000 ppm ( Rat ) 4 h

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
2-Pentanone, 4-methyl-	-	-	ATE = 11 mg/L (vapour)

ECHA (RAC) - Committee for Risk Assessment - European CHemicals Agency

ATE - Acute Toxicity Estimate

#### (b) skin corrosion/irritation;

Based on available data, the classification criteria are not met

#### (c) serious eye damage/irritation;

Category 2

#### (d) respiratory or skin sensitization;

Respiratory

Based on available data, the classification criteria are not met

Skin

Based on available data, the classification criteria are not met

#### (e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

#### (f) carcinogenicity;

Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
2-Pentanone, 4-methyl-				Group 2B

#### (g) reproductive toxicity;

Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
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2-Pentanone, 4-methyl- 108-10-1 ( >95 )	OECD Test Guideline 414	Rat  Inhalation	NOAEL = 4.1 mg/l
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(h) STOT-single exposure; Category 3  
Results / Target organs Nasal Cavities, Respiratory system, Eyes, Central nervous system (CNS).

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met  
Target Organs None known.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

## 11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

Ecotoxicity effects Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae
2-Pentanone, 4-methyl-	LC50: 496 - 514 mg/L, 96h flow-through (Pimephales promelas)	EC50: 4280.0 mg/L/24h EC50: 170 mg/L/48h EC50: 4280.0 mg/L/24h	EC50: 400 mg/L/96h

Component	Microtox	M-Factor
2-Pentanone, 4-methyl-	EC50 = 79.6 mg/L 5 min	

12.2. Persistence and degradability Readily biodegradable  
Persistence Persistence is unlikely.

Component	Degradability
2-Pentanone, 4-methyl- 108-10-1 ( >95 )	83 % (28 d) (OECD 301F)

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
2-Pentanone, 4-methyl-	1.9	No data available

12.4. Mobility in soil The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).

### 12.6. Endocrine disrupting

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## properties

### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

## 12.7. Other adverse effects

### Persistent Organic Pollutant

This product does not contain any known or suspected substance

### Ozone Depletion Potential

This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

#### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

#### European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

#### Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.

#### Switzerland - Waste Ordinance

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600  
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

#### 14.1. UN number

UN1245

#### 14.2. UN proper shipping name

METHYL ISOBUTYL KETONE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

### ADR

#### 14.1. UN number

UN1245

#### 14.2. UN proper shipping name

METHYL ISOBUTYL KETONE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

### IATA

#### 14.1. UN number

UN1245

#### 14.2. UN proper shipping name

METHYL ISOBUTYL KETONE

#### 14.3. Transport hazard class(es)

3

#### 14.4. Packing group

II

#### 14.5. Environmental hazards

No hazards identified

#### 14.6. Special precautions for user

No special precautions required.

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## 14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

#### International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
2-Pentanone, 4-methyl-	108-10-1	203-550-1	-	-	X	X	KE-24725	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
2-Pentanone, 4-methyl-	108-10-1	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
2-Pentanone, 4-methyl-	108-10-1	-	Use restricted. See item 75. (see link for restriction details)	-

#### REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

#### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
2-Pentanone, 4-methyl-	108-10-1	Not applicable	Not applicable

#### Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

#### Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

#### National Regulations

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UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification** See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
2-Pentanone, 4-methyl-	WGK1	

Component	France - INRS (Tables of occupational diseases)
2-Pentanone, 4-methyl-	Tableaux des maladies professionnelles (TMP) - RG 84

## Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
2-Pentanone, 4-methyl-108-10-1 (>95 )		Group I	

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

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

H332 - Harmful if inhaled  
H319 - Causes serious eye irritation  
H336 - May cause drowsiness or dizziness  
H351 - Suspected of causing cancer  
EUH066 - Repeated exposure may cause skin dryness or cracking  
H225 - Highly flammable liquid and vapor

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

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BCF - Bioconcentration factor

VOC - (volatile organic compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

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17-Sep-2009

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Revision Summary

SDS sections updated.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.  
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No  
1907/2006 .**

**For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2,  
Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and  
Preparations).**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**