SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Creation Date 25-Aug-2010 **Revision Date** 19-Oct-2023 **Revision Number** 15

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

1.1. Product identifier

Product Description:	**Cyclohexanone**
Cat No. :	**C/9050/PB17, C/9050/PB08**
Synonyms	Ketohexamethylene; Pimelic ketone.
Index No	606-010-00-7
CAS No	108-94-1
EC No	203-631-1
Molecular Formula	C6 H10 O
REACH registration number	01-2119453616-35

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

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

1.3. Details of the supplier of the safety data sheet

Company

EU entity/business name
Thermo Fisher Scientific
Janssen Pharmaceuticalaan 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

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001-703-527-3887

For 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)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 3 (H226)

Health hazards

Acute oral toxicity	Category 4 (H302)
Acute dermal toxicity	Category 4 (H312)
Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Skin Corrosion/Irritation	Category 2 (H315)
Serious Eye Damage/Eye Irritation	Category 1 (H318)

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
H226 - Flammable liquid and vapor
H315 - Causes skin irritation
H318 - Causes serious eye damage
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled

Precautionary Statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

2.3. Other hazards

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

Toxicity to Soil Dwelling Organisms
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
Cyclohexanone	108-94-1	EEC No. 203-631-1	>95	Flam. Liq. 3 (H226) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Eye Dam. 1 (H318) Skin Irrit. 2 (H315)

REACH registration number	01-2119453616-35

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. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Inhalation Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.

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

Difficulty in breathing. Causes eye burns. Causes severe eye damage. Symptoms of overexposure may be 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.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
Water may be ineffective. Do not use a solid water stream as it may scatter and spread fire.

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_2).

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

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

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

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. Take precautionary measures against static discharges.

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. Ensure adequate ventilation. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

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

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
Cyclohexanone	TWA: 10 ppm (8h) TWA: 40.8 mg/m³ (8h) STEL: 20 ppm (15min) STEL: 81.6 mg/m³ (15min) Skin	STEL: 20 ppm 15 min STEL: 82 mg/m³ 15 min TWA: 10 ppm 8 hr TWA: 41 mg/m³ 8 hr Skin	TWA / VME: 10 ppm (8 heures). restrictive limit TWA / VME: 40.8 mg/m³ (8 heures). restrictive limit STEL / VLCT: 20 ppm. restrictive limit STEL / VLCT: 81.6 mg/m³. restrictive limit	TWA: 10 ppm 8 uren TWA: 40.8 mg/m³ 8 uren STEL: 20 ppm 15 minuten STEL: 81.6 mg/m³ 15 minuten Huid	STEL / VLA-EC: 20 ppm (15 minutos). STEL / VLA-EC: 82 mg/m³ (15 minutos). TWA / VLA-ED: 10 ppm (8 horas) TWA / VLA-ED: 41 mg/m³ (8 horas) Piel

Component	Italy	Germany	Portugal	The Netherlands	Finland
Cyclohexanone	TWA: 10 ppm 8 ore. Time Weighted Average TWA: 40.8 mg/m³ 8 ore. Time Weighted Average STEL: 20 ppm 15 minuti. Short-term STEL: 81.6 mg/m³ 15 minuti. Short-term Pelle	TWA: 20 ppm (8 Stunden). AGW - exposure factor 1 TWA: 80 mg/m³ (8 Stunden). AGW - exposure factor 1 Haut	STEL: 20 ppm 15 minutos STEL: 81.6 mg/m³ 15 minutos TWA: 10 ppm 8 horas TWA: 40.8 mg/m³ 8 horas Pele	huid STEL: 50 mg/m³ 15 minuten	TWA: 10 ppm 8 tunteina TWA: 41 mg/m³ 8 tunteina STEL: 20 ppm 15 minuutteina STEL: 82 mg/m³ 15 minuutteina Iho

Component	Austria	Denmark	Switzerland	Poland	Norway
Cyclohexanone	Haut MAK-KZGW: 20 ppm 15 Minuten MAK-KZGW: 80 mg/m³ 15 Minuten MAK-TMW: 5 ppm 8 Stunden MAK-TMW: 20 mg/m³ 8 Stunden	TWA: 10 ppm 8 timer TWA: 41 mg/m³ 8 timer STEL: 81.6 mg/m³ 15 minutter STEL: 20 ppm 15 minutter Hud	Haut/Peau STEL: 50 ppm 15 Minuten STEL: 200 mg/m³ 15 Minuten TWA: 25 ppm 8 Stunden TWA: 100 mg/m³ 8 Stunden	STEL: 80 mg/m³ 15 minutach TWA: 40 mg/m³ 8 godzinach	TWA: 10 ppm 8 timer TWA: 40 mg/m³ 8 timer STEL: 20 ppm 15 minutter. value from the regulation STEL: 80 mg/m³ 15 minutter. value from the regulation Hud

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Cyclohexanone	TWA: 10 ppm TWA: 40.8 mg/m³ STEL : 20 ppm STEL : 81.6 mg/m³ Skin notation	kože TWA-GVI: 10 ppm 8 satima. TWA-GVI: 40.8 mg/m³ 8 satima. STEL-KGVI: 20 ppm 15 minutama. STEL-KGVI: 81.6 mg/m³ 15 minutama.	TWA: 10 ppm 8 hr. TWA: 40.8 mg/m³ 8 hr. STEL: 20 ppm 15 min STEL: 81.6 mg/m³ 15 min Skin	STEL: 20 ppm STEL: 81.6 mg/m³ TWA: 10 ppm TWA: 40.8 mg/m³	TWA: 40 mg/m³ 8 hodinách. Potential for cutaneous absorption Ceiling: 80 mg/m³

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Cyclohexanone	Nahk TWA: 10 ppm 8 tundides. TWA: 40.8 mg/m³ 8 tundides. STEL: 20 ppm 15 minutites. STEL: 81.6 mg/m³ 15 minutites.	Skin notation TWA: 10 ppm 8 hr TWA: 40.8 mg/m³ 8 hr STEL: 20 ppm 15 min STEL: 81.6 mg/m³ 15 min	skin - potential for cutaneous absorption STEL: 100 ppm STEL: 400 mg/m³ TWA: 50 ppm TWA: 200 mg/m³	STEL: 81.6 mg/m³ 15 percekben. CK TWA: 40.8 mg/m³ 8 órában. AK lehetséges borön keresztüli felszívódás	STEL: 20 ppm STEL: 81.6 mg/m³ TWA: 10 ppm 8 klukkustundum. TWA: 40 mg/m³ 8 klukkustundum. Skin notation

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Cyclohexanone	skin - potential for cutaneous exposure STEL: 20 ppm STEL: 81.6 mg/m³ TWA: 10 ppm TWA: 40.8 mg/m³	TWA: 10 ppm IPRD TWA: 40.8 mg/m³ IPRD Oda STEL: 20 ppm STEL: 81.6 mg/m³	Possibility of significant uptake through the skin TWA: 10 ppm 8 Stunden TWA: 40.8 mg/m³ 8 Stunden STEL: 20 ppm 15 Minuten STEL: 81.6 mg/m³ 15 Minuten	possibility of significant uptake through the skin TWA: 10 ppm TWA: 40.8 mg/m³ STEL: 20 ppm 15 minuti STEL: 81.6 mg/m³ 15 minuti	Skin notation TWA: 10 ppm 8 ore TWA: 40.8 mg/m³ 8 ore STEL: 20 ppm 15 minute STEL: 81.6 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Cyclohexanone	TWA: 10 mg/m³ 2318 MAC: 30 mg/m³	Ceiling: 82 mg/m³ Potential for cutaneous absorption TWA: 10 ppm TWA: 41 mg/m³	TWA: 10 ppm 8 urah TWA: 40.8 mg/m³ 8 urah Koža STEL: 20 ppm 15 minutah STEL: 81.6 mg/m³ 15 minutah	Binding STEL: 20 ppm 15 minuter Binding STEL: 81 mg/m³ 15 minuter TLV: 10 ppm 8 timmar. NGV TLV: 41 mg/m³ 8 timmar. NGV Hud	Deri TWA: 10 ppm 8 saat TWA: 40.8 mg/m³ 8 saat STEL: 20 ppm 15 dakika STEL: 81.6 mg/m³ 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
Cyclohexanone		Cyclohexanol: 2 mmol/mol creatinine urine post shift		1,2-Cyclohexanodiol (with hydrolysis): 80 mg/L urine end of workweek Cyclohexanol (with hydrolysis): 8 mg/L urine end of shift	

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
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	Acute effects	Chronic effects local	Chronic effects

	(Dermal)	systemic (Dermal)	(Dermal)	systemic (Dermal)
Cyclohexanone 108-94-1 (>95)		DNEL = 4mg/kg bw/day		DNEL = 4mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Cyclohexanone 108-94-1 (>95)	DNEL = 80mg/m^3	DNEL = 80mg/m^3	DNEL = 40mg/m^3	DNEL = 40mg/m^3

Predicted No Effect Concentration (PNEC)
See values below.

Component	Fresh water	Fresh water sediment	Water Intermittent	Microorganisms in sewage treatment	Soil (Agriculture)
Cyclohexanone 108-94-1 (>95)	PNEC = 0.0329mg/L	PNEC = 0.249mg/kg sediment dw	PNEC = 0.329mg/L	PNEC = 10mg/L	PNEC = 0.0304mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water Intermittent	Food chain	Air
Cyclohexanone 108-94-1 (>95)	PNEC = 0.00329mg/L	PNEC = 0.0249mg/kg sediment dw			

8.2. Exposure controls

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.
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
Butyl rubber	> 480 minutes	0.35 mm	Level 6	As tested under EN374-3 Determination of
Viton (R)	> 480 minutes	0.70 mm	EN 374	Resistance to Permeation by Chemicals
Nitrile rubber				
Neoprene	< 100 minutes	0.45 mm		
Nitrile rubber	< 60 minutes	0.38 mm		

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 compatability, 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

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to

EN14387

Small scale/Laboratory use

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.
Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance	Colorless	
Odor	Mint-like	
Odor Threshold	0.12 ppm	
Melting Point/Range	-47 °C / -52.6 °F	
Softening Point	No data available	
Boiling Point/Range	155 °C / 311 °F	@ 760 mmHg
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 1.1 vol% **Upper** 8.1 vol%	
Flash Point	46 °C / 114.8 °F	**Method -** CC (closed cup)
Autoignition Temperature	520 - °C / 968 - °F	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	2.2 mPas @ 20°C	
Water Solubility	Soluble	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Cyclohexanone	0.86

Vapor Pressure	4.5 mbar @ 20 °C	
Density / Specific Gravity	0.947	
Bulk Density	Not applicable	Liquid
Vapor Density	3.4	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

9.2. Other information

Molecular Formula	C6 H10 O
Molecular Weight	98.14
Explosive Properties	explosive air/vapour mixtures possible

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.
Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. . Strong bases.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

Oral Category 4
Dermal Category 4
Inhalation Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclohexanone	LD50 = 1544 mg/kg (Rat)	LD50 = 947 mg/kg (Rabbit)	LC50 > 6.2 mg/L (Rat) 4 h

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 1

(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; Based on available data, the classification criteria are not met

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

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(h) STOT-single exposure; Based on available data, the classification criteria are not met

(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 Symptoms of overexposure may be 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 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Cyclohexanone	Leusiscus idus: LC50>500mg/L 48h		

Component	Microtox	M-Factor
Cyclohexanone	EC50 = 18.5 mg/L 5 min EC50 = 21.3 mg/L 10 min EC50 = 25 mg/L 5 min	

12.2. Persistence and degradability

Readily biodegradable

Persistence based on information available, May persist.

Degradation in sewage treatment plant Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential

May have some potential to bioaccumulate

Component	log Pow	Bioconcentration factor (BCF)
Cyclohexanone	0.86	No data available

12.4. Mobility in soil

The product is insoluble and floats on water The product is water soluble, and may spread in water systems The product evaporates slowly Is not likely mobile in the environment due its low water solubility. Will likely be mobile in the environment due to its water solubility. Disperses rapidly in air: Highly mobile in soils: Spillage unlikely to penetrate soil

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 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	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains.
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	UN1915
14.2. UN proper shipping name	CYCLOHEXANONE
14.3. Transport hazard class(es)	3
14.4. Packing group	III

ADR

14.1. UN number	UN1915
14.2. UN proper shipping name	CYCLOHEXANONE
14.3. Transport hazard class(es)	3
14.4. Packing group	III

IATA

14.1. UN number	UN1915
14.2. UN proper shipping name	CYCLOHEXANONE
14.3. Transport hazard class(es)	3
14.4. Packing group	III

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.
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
Cyclohexanone	108-94-1	203-631-1	-	-	X	X	KE-09188	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Cyclohexanone	108-94-1	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 Not applicable

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)
Cyclohexanone	108-94-1	-	-	-

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
Cyclohexanone	108-94-1	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

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
Cyclohexanone	WGK1	

Component	France - INRS (Tables of occupational diseases)
Cyclohexanone	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	Switzerland - Ordinance on	Switzerland - Ordinance of the

	Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Incentive Taxes on Volatile Organic Compounds (OVOC)	Rotterdam Convention on the Prior Informed Consent Procedure
Cyclohexanone 108-94-1 (>95)		Group I	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

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

H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H318 - Causes serious eye damage
H332 - Harmful if inhaled

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/NDSL - 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
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
BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
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.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.
Chemical incident response training.

Creation Date	25-Aug-2010
Revision Date	19-Oct-2023
Revision Summary	Not applicable.

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