

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

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/9040/21, C/9040/25, C/9040/PB08, C/9040/PB17

**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

UK entity/business name

Fisher Scientific UK

Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

**EU entity/business name** Thermo Fisher Scientific

Janssen Pharmaceuticalaan 3a

2440 Geel, Belgium

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

## **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Cyclohexanone Revision Date 19-Oct-2023

#### **Physical hazards**

Flammable liquids Category 3 (H226)

#### **Health hazards**

Acute oral toxicity

Acute dermal toxicity

Acute Inhalation Toxicity - Vapors

Skin Corrosion/Irritation

Serious Eye Damage/Eye Irritation

Category 1 (H302)

Category 4 (H312)

Category 4 (H332)

Category 2 (H315)

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**

\_\_\_\_\_

Page 2/12

Cyclohexanone Revision Date 19-Oct-2023

#### 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
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

Cyclohexanone Revision Date 19-Oct-2023

ignition and flash back.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO2).

#### 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 Class 3 Storage Class (LGK) (Germany)

#### 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

Cyclohexanone Revision Date 19-Oct-2023

#### 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, Fourth edition. Published 2020. IRE - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Cyclohexanone	STEL: 20 ppm 15 min	TWA: 10 ppm (8h)	TWA: 10 ppm 8 hr.
	STEL: 82 mg/m <sup>3</sup> 15 min	TWA: 40.8 mg/m <sup>3</sup> (8h)	TWA: 40.8 mg/m <sup>3</sup> 8 hr.
	TWA: 10 ppm 8 hr	STEL: 20 ppm (15min)	STEL: 20 ppm 15 min
	TWA: 41 mg/m <sup>3</sup> 8 hr	STEL: 81.6 mg/m <sup>3</sup> (15min)	STEL: 81.6 mg/m <sup>3</sup> 15 min
	Skin	Skin	Skin

#### **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	United Kingdom	European Union
Cyclohexanone	Cyclohexanol: 2 mmol/mol creatinine urine	
	post shift	

### 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)
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 <sup>3</sup>	DNEL = 80mg/m <sup>3</sup>	DNEL = 40mg/m <sup>3</sup>	DNEL = 40mg/m <sup>3</sup>

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

See values below.

ſ	Component	Fresh water		Water Intermittent	•	` ' '
L			sediment		sewage treatment	
Γ	Cyclohexanone	PNEC =	PNEC =	PNEC = 0.329mg/L	PNEC = 10mg/L	PNEC =
1	108-94-1 ( >95 )	0.0329mg/L	0.249mg/kg			0.0304mg/kg soil
L			sediment dw			dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Cyclohexanone	PNEC =	PNEC =			
108-94-1 (>95)	0.00329mg/L	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.

Page 5/12

Cyclohexanone Revision Date 19-Oct-2023

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.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure 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.

Remove 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

@ 760 mmHg

Liquid

On basis of test data

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

Flammability (liquid) Flammable
Flammability (solid,gas) Not applicable

Explosion Limits

Lower 1.1 vol%
Upper 8.1 vol%

Flash Point 46 °C / 114.8 °F

Cyclohexanone Revision Date 19-Oct-2023

, -----

Method - CC (closed cup)

Autoignition Temperature

Decomposition Temperature
pH

Viscosity

520 - °C / 968 - °F
No data available
No information available
2.2 mPas @ 20°C

Water Solubility Soluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog PowCyclohexanone0.86

Vapor Pressure 4.5 mbar @ 20 °C

Density / Specific Gravity 0.947

Bulk DensityNot applicableLiquidVapor Density3.4(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 (CO2).

## **SECTION 11: TOXICOLOGICAL INFORMATION**

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

**Product Information** 

(a) acute toxicity;

OralCategory 4DermalCategory 4InhalationCategory 4

\_\_\_\_\_

#### Cyclohexanone

Revision Date 19-Oct-2023

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

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;

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.

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

Symptoms / effects, both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. delayed

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

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic **Ecotoxicity effects** 

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	

Cyclohexanone Revision Date 19-Oct-2023

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	
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 Ozone Depletion Potential This product does not contain any known or suspected substance 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.

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN1915

14.2. UN proper shipping name CYCLOHEXANONE

14.3. Transport hazard class(es)

Cyclohexanone Revision Date 19-Oct-2023

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

<u>IATA</u>

**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 Not applicable, packaged goods

according to IMO instruments

## **SECTION 15: REGULATORY INFORMATION**

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

#### **International Inventories**

Component

Cyclohexanone

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)

EINECS ELINCS

Cyclohexanone	108-94-1	203-631-1	-	-	X	X	KE-09188	Χ	X
Component	CAS No	TSCA	TSCA Ir notific	ventory ation -	DSL	NDSL	AICS	NZIoC	PICCS
			Active-	Inactive					

**ACTIVE** 

NLP

IECSC

TCSI

KECL

**ENCS** 

ISHL

Χ

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Χ

#### Authorisation/Restrictions according to EU REACH Not applicable

CAS No

108-94-1

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	J	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) -	Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	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

Cyclohexanone Revision Date 19-Oct-2023

#### 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
Су	/clohexanone	WGK1	

Component	France - INRS (Tables of occupational diseases)
Cyclohexanone	Tableaux des maladies professionnelles (TMP) - RG 84

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

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

EINECS/ELINCS - European Inventory of Existing Commercial Chemical 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

Cyclohexanone Revision Date 19-Oct-2023

TWA - Time Weighted Average

EC50 - Effective Concentration 50%

LD50 - Lethal Dose 50%

Transport Association

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

IARC - International Agency for Research on Cancer

ICAO/IATA - International Civil Aviation Organization/International Air

MARPOL - International Convention for the Prevention of Pollution from

Predicted No Effect Concentration (PNEC)

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

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

**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

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.

Ships

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 Date25-Aug-2010Revision Date19-Oct-2023Revision SummaryNot applicable.

## This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

## 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**