

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

Creation Date 28-Apr-2009 Revision Date 09-Feb-2024 Revision Number 8

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

#### 1.1. Product identifier

Product Description: Cyclopentylmagnesium chloride, 2M solution in diethyl ether

Cat No.: 208460000; 208461000; 208468000

Molecular Formula C5 H9 Cl Mg

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

Recommended Use Laboratory chemicals.
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

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

## **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

#### **Physical hazards**

Flammable liquids Category 1 (H224) Substances/mixtures which, in contact with water, emit flammable gases Category 2 (H261)

**Health hazards** 

Acute oral toxicity Category 4 (H302)
Skin Corrosion/Irritation Category 1 B (H314)

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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**

H224 - Extremely flammable liquid and vapor

H261 - In contact with water releases flammable gases

H302 - Harmful if swallowed

H336 - May cause drowsiness or dizziness

H314 - Causes severe skin burns and eye damage

EUH019 - May form explosive peroxides

EUH014 - Reacts violently with water

EUH066 - Repeated exposure may cause skin dryness or cracking

## **Precautionary Statements**

P280 - Wear eye protection/ face protection

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

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 + P335 + P334 - IF ON SKIN: Brush off loose particles from skin. Immerse in cool water

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P233 - Keep container tightly closed

### 2.3. Other hazards

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

#### 3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Ethyl ether	60-29-7	EEC No. 200-467-2	70	Flam. Liq. 1 (H224) Acute Tox. 4 (H302) STOT SE 3 (H336) (EUH019) (EUH066)
Magnesium, chlorocyclopentyl-	32916-51-1		30	Skin Corr. 1B (H314)

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		Eye Dam. 1 (H318)
		Water-react. 2 (H261)
		(EUH014)

Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

#### 4.1. Description of first aid measures

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. Immediate medical

attention is required.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

**Inhalation** Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth

method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Immediate medical attention is required.

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

Causes burns by all exposure routes. Difficulty in breathing. . Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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.

## **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

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

Water.

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

Extremely flammable. Risk of ignition. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Reacts violently with water. Contact with water liberates extremely flammable gases. May form explosive peroxides.

#### **Hazardous Combustion Products**

Cyclopentane, Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Magnesium oxides, Hydrocarbons.

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#### 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. Thermal decomposition can lead to release of irritating gases and vapors.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Use personal protective equipment as required. Wear self-contained breathing apparatus and protective suit. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.

### 6.2. Environmental precautions

Should not be released into the environment. 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. Do not expose spill to water.

#### 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

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Keep under nitrogen. Do not allow contact with water because of violent reaction. If peroxide formation is suspected, do not open or move container. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

### **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.

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

Flammables area. Keep away from heat, sparks and flame. Keep away from water or moist air. Store indoors. May form explosive peroxides. Containers should be dated when opened and tested periodically for the presence of peroxides. Should crystals form in a peroxidizable liquid, peroxidation may have occurred and the product should be considered extremely dangerous. In this instance, the container should only be opened remotely by professionals. Keep container tightly closed in a dry and well-ventilated place. Keep under nitrogen.

Technical Rules for Hazardous Substances (TRGS) 510 Class 4.3 Storage Class (LGK) (Germany)

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

Use in laboratories

## 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
Ethyl ether	STEL: 200 ppm 15 min	TWA: 100 ppm (8h)	TWA: 100 ppm 8 hr.
	STEL: 620 mg/m <sup>3</sup> 15 min	TWA: 308 mg/m <sup>3</sup> (8h)	TWA: 308 mg/m <sup>3</sup> 8 hr.
	TWA: 100 ppm 8 hr	STEL: 200 ppm (15min)	STEL: 200 ppm 15 min
	TWA: 310 mg/m <sup>3</sup> 8 hr	STEL: 616 mg/m <sup>3</sup> (15min)	STEL: 616 mg/m <sup>3</sup> 15 min

### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

### 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)
Ethyl ether				DNEL = 44mg/kg
60-29-7 ( 70 )				bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Ethyl ether 60-29-7 ( 70 )		DNEL = 616mg/m <sup>3</sup>		DNEL = 308mg/m <sup>3</sup>

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

See values below.

Component	Fresh water	Fresh water sediment	Microorganisms in sewage treatment	Soil (Agriculture)
Ethyl ether 60-29-7 ( 70 )	PNEC = 2mg/L	PNEC = 9.14mg/kg sediment dw	J	PNEC = 0.66mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Ethyl ether	PNEC = 0.2mg/L	PNEC =			
60-29-7 ( 70 )		0.914mg/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

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Glove material Natural rubber See manufacturers - Nitrile rubber recommendations Neoprene PVC Viton (R)	EU standard EN 374	Glove comments (minimum requirement)
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Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

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

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits Large scale/emergency use

are exceeded or if irritation or other symptoms are experienced

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to

EN14387 low boiling organic solvent Type AX Brown conforming to EN371 or

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

On basis of test data

Liquid

When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

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

**Physical State** Liquid

**Appearance** 

No information available Odor **Odor Threshold** No data available **Melting Point/Range** No data available **Softening Point** No data available No information available **Boiling Point/Range** Flammability (liquid) Extremely flammable

Flammability (solid,gas) Not applicable

**Explosion Limits** No data available

**Flash Point** -40 °C / -40 °F Method - No information available

**Autoignition Temperature** No data available **Decomposition Temperature** No data available Hq No information available **Viscosity** No data available Water Solubility No information available Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Ethyl ether 0.82

**Vapor Pressure** No data available

**Density / Specific Gravity** 0.86

**Bulk Density** Not applicable Liquid

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**Vapor Density** No data available (Air = 1.0)

**Particle characteristics** Not applicable (liquid)

9.2. Other information

**Molecular Formula** C5 H9 CI Mg **Molecular Weight** 128.88

**Explosive Properties** Vapors may form explosive mixtures with air

Substances/mixtures which, in contact with water, emit flammable gases

**SECTION 10: STABILITY AND REACTIVITY** 

Emitted gas ignites spontaneously

Gas(es) = Cyclopentane

10.1. Reactivity

Yes

10.2. Chemical stability

Moisture sensitive, Reacts violently with water, May form explosive peroxides.

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10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.

Reacts violently with water. May form explosive peroxides. **Hazardous Reactions** 

10.4. Conditions to avoid

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

sources of ignition. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Cyclopentane. Carbon monoxide (CO). Carbon dioxide (CO2). Magnesium oxides.

Hydrocarbons.

**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** Inhalation Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl ether	1215 mg/kg (Rat)	20 mL/kg (Rabbit)	32000 ppm (Rat) 4 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; No data available

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(d) respiratory or skin sensitization;

No data available Respiratory Skin No data available

(e) germ cell mutagenicity; No data available

No data available (f) carcinogenicity;

There are no known carcinogenic chemicals in this product

No data available (g) reproductive toxicity;

Category 3 (h) STOT-single exposure;

Results / Target organs Central nervous system (CNS).

No data available (i) STOT-repeated exposure;

**Target Organs** No information available.

No data available (j) aspiration hazard;

**Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for

complete information

delayed

**Symptoms / effects, both acute and** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. 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** 

Component	Freshwater Fish	Water Flea	Freshwater Algae
Ethyl ether	LC50: > 10000 mg/L, 96h static (Lepomis macrochirus) LC50: = 2560 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 165 mg/L/24h	

Component	Microtox	M-Factor
Ethyl ether	EC50 = 5600 mg/L 15 min	

#### 12.2. Persistence and degradability No information available

No information available 12.3. Bioaccumulative potential

Component	log Pow	Bioconcentration factor (BCF)
Component	.09.0	Diocontonia anon lactor (DCI)

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Ethyl ether 0.82 No data available

12.4. Mobility in soil

12.5. Results of PBT and vPvB

assessment

No data available for assessment.

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

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. Do not empty into drains. Large amounts will affect pH and harm aquatic

organisms.

## **SECTION 14: TRANSPORT INFORMATION**

## IMDG/IMO

14.1. UN number

UN3399

14.2. UN proper shipping name
Technical Shipping Name

Organometallic substance, liquid, water-reactive, flammable (Diethyl ether; Cyclopentyl magnesium chloride)

14.3. Transport hazard class(es)

4.3

Subsidiary Hazard Class

3

14.4. Packing group

I

ADR

14.1. UN number

UN3399

14.2. UN proper shipping name

Organometallic substance, liquid, water-reactive, flammable

Technical Shipping Name
14.3. Transport hazard class(es)

(Diethyl ether; Cyclopentyl magnesium chloride) 4.3

Subsidiary Hazard Class

3

14.4. Packing group

I

IATA

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**14.1. UN number** UN3399

**14.2. UN proper shipping name** Organometalic substance, liquid, water-reactive, flammable

**Technical Shipping Name** (Diethyl ether; Cyclopentyl magnesium chloride)

14.3. Transport hazard class(es)4.3Subsidiary Hazard Class314.4. Packing groupI

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
Ethyl ether	60-29-7	200-467-2	-	-	Х	X	KE-27690	X	Х
Magnesium, chlorocyclopentyl-	32916-51-1	-	-	-	-	X	-	-	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Ethyl ether	60-29-7	X	ACTIVE	X	-	X	Х	X
Magnesium, chlorocyclopentyl-	32916-51-1	-	=	-	-	Х	-	-

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 Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Ethyl ether	60-29-7	-	-	-
Magnesium, chlorocyclopentyl-	32916-51-1	-	-	-

Not applicable

## 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
Ethyl ether	60-29-7	Not applicable	Not applicable
Magnesium, chlorocyclopentyl-	32916-51-1	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

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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

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** Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Ethyl ether	WGK1	
Magnesium, chlorocyclopentyl-	WGK1	

Component	France - INRS (Tables of occupational diseases)
Ethyl ether	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
Ethyl ether		Group I	
60-29-7 ( 70 )			

## 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

## **SECTION 16: OTHER INFORMATION**

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

H224 - Extremely flammable liquid and vapor

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H336 - May cause drowsiness or dizziness

EUH014 - Reacts violently with water

EUH019 - May form explosive peroxides

EUH066 - Repeated exposure may cause skin dryness or cracking

H261 - In contact with water releases flammable gases

H318 - Causes serious eye damage

#### Legend

CAS - Chemical Abstracts Service

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

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EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic 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 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

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

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MARPOL - International Convention for the Prevention of Pollution from

vPvB - very Persistent, very Bioaccumulative

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ADR - European Agreement Concerning the International Carriage of ICAO/IATA - International Civil Aviation Organization/International Air

Dangerous Goods by Road

PBT - Persistent, Bioaccumulative, Toxic

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

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

**BCF** - Bioconcentration factor

Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Transport Association

Key literature references and sources for data

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

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

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Physical hazards
Health Hazards
Calculation method
Environmental hazards
Cn basis of test data
Calculation method

**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 Date28-Apr-2009Revision Date09-Feb-2024Revision 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**