

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

Creation Date 20-Jul-2010 Revision Date 28-Feb-2025 Revision Number 8

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

1.1. Product identifier

Product Description: Vanadium(III) chloride-tetrahydrofuran complex (1:3), 0.5M solution in methylene

chloride

Cat No.: 433660000; 433661000; 433668000

Molecular Formula V Cl3 . C12 H24 O3

## 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

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

#### Physical hazards

Based on available data, the classification criteria are not met

## **Health hazards**

Skin Corrosion/Irritation Category 1 B (H314)
Serious Eye Damage/Eye Irritation Category 1 (H318)

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Carcinogenicity

Specific target organ toxicity - (single exposure)

Category 2 (H351) 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**

H314 - Causes severe skin burns and eye damage

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

## **Precautionary Statements**

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

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

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

P310 - Immediately call a POISON CENTER or doctor/physician

## 2.3. Other hazards

Toxic to terrestrial vertebrates

Contains a known or suspected endocrine disruptor

Contains a substance on the National Authorities Endocrine Disruptor Lists

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

#### 3.2. Mixtures

Component	CAS No	EC No	Weight %	GHS Classification - According to
				GB-CLP Regulations UK SI 2019/720 and
				UK SI 2020/1567
Methylene chloride	75-09-2	EEC No. 200-838-9	86	Skin Irrit. 2 (H315)
				Eye Irrit. 2 (H319)
				STOT SE 3 (H336)
				Carc. 2 (H351)
Vanadium(III) chloride-tetrahydrofuran	19559-06-9		14	Skin Corr. 1B (H314)
complex (1:3)				Eye Dam. 1 (H318)
				Acute Tox. 4 (H302)
				Acute Tox. 4 (H312)
				Acute Tox. 4 (H332)

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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 Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

**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. Remove and wash

contaminated clothing and gloves, including the inside, before re-use. Call a physician

immediately.

**Ingestion** Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an

unconscious person. Call a physician immediately.

**Inhalation** If not breathing, give artificial respiration. Remove from exposure, lie down. 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. Call a physician immediately.

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. Causes central nervous system depression: 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.

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

No information available.

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

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous

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membranes.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Phosgene, Hydrogen chloride gas.

## 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

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

## 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.

#### 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. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

## **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

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

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

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1D Storage Class (LGK) (Germany)

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

Use in laboratories

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

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#### 8.1. Control parameters

## **Exposure limits**

List source(s): **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 **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

Component	The United Kingdom	European Union	Ireland
Methylene chloride	STEL: 200 ppm 15 min	TWA: 353 mg/m <sup>3</sup> (8h)	TWA: 100 ppm 8 hr.
	STEL: 706 mg/m <sup>3</sup> 15 min	TWA: 100 ppm (8h)	TWA: 353 mg/m <sup>3</sup> 8 hr.
	TWA: 353 mg/m <sup>3</sup> 8 hr	STEL: 706 mg/m <sup>3</sup> (15min)	STEL: 200 ppm 15 min
	TWA: 100 ppm 8 hr	STEL: 200 ppm (15min)	STEL: 706 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
Methylene chloride	Carbon monoxide: 30 ppm end-tidal breath	
	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)
Methylene chloride 75-09-2 ( 86 )				DNEL = 12mg/kg bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Methylene chloride		$DMEL = 132.14 mg/m^3$		$DNEL = 176mg/m^3$
75-09-2 ( 86 )				

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

See values below.

Г	Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
			sediment		sewage treatment	
Γ	Methylene chloride	PNEC = 130µg/L	PNEC = 163µg/kg	PNEC = 0.27mg/L	PNEC = 26mg/L	PNEC = 173µg/kg
	75-09-2 ( 86 )	PNEC = 0.31mg/L	sediment dw	_	_	soil dw
			PNEC = 2.57mg/kg			PNEC = 0.33mg/kg
L			sediment dw			soil dw

Γ	Component	Marine water	Marine water	Marine water	Food chain	Air
L			sediment	intermittent		
Γ	Methylene chloride	PNEC = 130µg/L	PNEC = 163µg/kg	PNEC = 0.027mg/L		
	75-09-2 ( 86 )	PNEC = 0.031 mg/L	sediment dw			
			PNEC = 0.26mg/kg			
			sediment dw			

## 8.2. Exposure controls

## **Engineering Measures**

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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	e material	Breakthrough time	Glove thickness	EU standard	Glove comments
Vi	ton (R)	See manufacturers	-	EN 374	(minimum requirement)
		recommendations			

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:** low boiling organic solvent Type AX Brown conforming to EN371 or 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

Liquid

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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** 

Odor No information available

Odor Threshold
Melting Point/Range
Softening Point
Boiling Point/Range
Flammability (liquid)
Flammability (solid,gas)
No data available

Explosion Limits No data available

Flash Point No information available Method - No information available

Autoignition Temperature No data available

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**Decomposition Temperature** No data available No information available рΗ No data available **Viscosity** Water Solubility Slightly soluble Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Methylene chloride 1.25

**Vapor Pressure** No data available

Density / Specific Gravity 1.312

**Bulk Density** Not applicable Liquid **Vapor Density** No data available (Air = 1.0)

Particle characteristics Not applicable (liquid)

9.2. Other information

Molecular Formula V Cl3, C12 H24 O3

**Molecular Weight** 373.62

## **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.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO2). Phosgene. Hydrogen chloride gas.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

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

**Product Information** No acute toxicity information is available for this product

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

Toxicology data for the components

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Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg ( Rat )	53 mg/L ( Rat ) 6 h
·			76000 mg/m³ (Rat) 4 h

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

No data available Respiratory No data available Skin

No data available (e) germ cell mutagenicity;

(f) carcinogenicity; Category 2

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

- California - Proposition 65 - Carcinogens List May cause cancer

Component	EU	UK	Germany	IARC
Methylene chloride				Group 2A

No data available (a) reproductive toxicity:

Category 3 (h) STOT-single exposure;

Results / Target organs Central nervous system (CNS).

No data available (i) STOT-repeated exposure;

**Target Organs** None known.

No data available (j) aspiration hazard;

**Other Adverse Effects** The toxicological properties have not been fully investigated.

delayed

Symptoms / effects,both acute and Causes central nervous system depression. 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

Contains a substance on the National Authorities Endocrine Disruptor Lists

## **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity

**Ecotoxicity effects** Do not empty into drains. .

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Component	Freshwater Fish	Water Flea	Freshwater Algae
Methylene chloride	Pimephales promelas: LC50:193	EC50: 140 mg/L/48h	EC50:>660 mg/L/96h
	mg/L/96h		

Component	Microtox	M-Factor
Methylene chloride	EC50: 1 mg/L/24 h	
	EC50: 2.88 mg/L/15 min	

12.2. Persistence and degradability Not applicable for mixtures **Persistence** 

Persistence is unlikely.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Methylene chloride	1.25	6.4 - 40 dimensionless

12.4. Mobility in soil

. Is not likely mobile in the environment due its low water solubility.

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

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**14.1. UN number** UN1593

14.2. UN proper shipping name DICHLOROMETHANE

14.3. Transport hazard class(es) 6.1 14.4. Packing group III

ADR

**14.1. UN number** UN1593

14.2. UN proper shipping name DICHLOROMETHANE

14.3. Transport hazard class(es) 6.1 14.4. Packing group III

<u>IATA</u>

**14.1. UN number** UN1593

14.2. UN proper shipping name DICHLOROMETHANE

14.3. Transport hazard class(es) 6.1 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
Methylene chloride	75-09-2	200-838-9	ı	-	X	X	KE-23893	X	X
Vanadium(III)	19559-06-9	-	-	-	-	X	-	-	-
chloride-tetrahydrofuran complex									
(1:3)									

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Methylene chloride	75-09-2	Х	ACTIVE	Х	-	Х	Х	Х
Vanadium(III) chloride-tetrahydrofuran complex (1:3)	19559-06-9	-	-	-	-	-	-	-

**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	3	Candidate List of
			Substances	Substances of Very High
				Concern (SVHC)

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Methylene chloride	75-09-2	- Use restricted. See entry -
		59.
		(see link for restriction
		details)
		Use restricted. See entry
		75.
		(see link for restriction
		details)
Vanadium(III)	19559-06-9	
chloride-tetrahydrofuran complex		
(1:3)		

#### **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) -	Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements
Methylene chloride	75-09-2	Not applicable	Not applicable
Vanadium(III) chloride-tetrahydrofuran complex (1:3)	19559-06-9	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**

Water endangering class = 2 (self classification)

Component Germany - Water Classification (AwSV)		Germany - TA-Luft Class	
Methylene chloride	WGK2	Class I: 20 mg/m³ (Massenkonzentration)	

Component	France - INRS (Tables of occupational diseases)
Methylene chloride	Tableaux des maladies professionnelles (TMP) - RG 12

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
Methylene chloride	Persistent Organic Pollutants	Group I	

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75-09-2 ( 86 )	(POPs)	
	Prohibited and Restricted	
	Substances	

#### 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

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

H302 - Harmful if swallowed

H312 - Harmful in contact with skin

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H332 - Harmful if inhaled

#### Legend

CAS - Chemical Abstracts Service

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

Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

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

IECSC - Chinese Inventory of Existing Chemical Substances

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

**ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

EC50 - Effective Concentration 50%

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

POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

LD50 - Lethal Dose 50%

TWA - Time Weighted Average

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

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

**Physical hazards** On basis of test data **Health Hazards** Calculation method **Environmental hazards** 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.

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Chemical incident response training.

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**Revision Summary** SDS sections updated.

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**