

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

Creation Date 22-Oct-2009

Revision Date 20-Oct-2023

**Revision Number** 14

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

#### 1.1. Product identifier

Product Description:	2-Methoxyethanol
Cat No. :	M/4100/PB17, M/4100/15, M/4100/17
Synonyms	Ethylene glycol monomethyl ether; Methyl cellosolve
Index No	603-011-00-4
CAS No	109-86-4
EC No	203-713-7
Molecular Formula	C3 H8 O2
REACH registration number	01-2119494721-33

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

Recommended Use Sector of use	Laboratory chemicals.
	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

#### 2-Methoxyethanol

### Physical hazards

Flammable liquids

#### Health hazards

Acute oral toxicity Acute dermal toxicity Acute Inhalation Toxicity - Vapors Reproductive Toxicity Specific target organ toxicity - (single exposure) Specific target organ toxicity - (repeated exposure)

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

H370 - Causes damage to organs

H360FD - May damage fertility. May damage the unborn child

H373 - May cause damage to organs through prolonged or repeated exposure

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

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

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

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

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

#### Additional EU labelling

Restricted to professional users

#### 2.3. Other hazards

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

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

Category 4 (H302) Category 4 (H312) Category 4 (H332) Category 1B (H360FD) Category 1 (H370) Category 2 (H373)

#### 2-Methoxyethanol

## SAFETY DATA SHEET

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 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
2-Methoxyethanol	109-86-4	EEC No. 203-713-7	<=100	Flam. Liq. 3 (H226) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Repr. 1B (H360FD) STOT SE1 (H370) STOT RE2 (H373)

REACH registration number	01-2119494721-33
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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	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.				
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 not breathing, give artificial respiration. 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				
	Difficulty in breathing. 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

#### 2-Methoxyethanol

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

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. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

#### Hazardous Combustion Products

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

#### 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. Ensure adequate ventilation. 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.

#### 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.

#### 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. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

#### Hygiene Measures

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

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

Flammables area. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. May form explosive peroxides on prolonged storage. Keep under nitrogen.

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

Class 3

#### 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, 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
2-Methoxyethanol	STEL: 3 ppm 15 min	TWA: 1 ppm (8h)	TWA: 1 ppm 8 hr.
	STEL: 9 mg/m <sup>3</sup> 15 min	Skin	STEL: 3 ppm 15 min
	TWA: 1 ppm 8 hr		Skin
	TWA: 3 mg/m <sup>3</sup> 8 hr		
	Skin		

#### **Biological limit values**

List source(s):

#### 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
	(Oral)	systemic (Oral)	(Oral)	systemic (Oral)
2-Methoxyethanol 109-86-4(<=100)				11 mg/kg bw/d

Component	Acute effects local (Dermal)	Acute effects systemic (Dermal)	Chronic effects local (Dermal)	Chronic effects systemic (Dermal)
2-Methoxyethanol				DNEL = 0.22mg/kg
109-86-4 ( <=100 )				bw/day

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
2-Methoxyethanol 109-86-4(<=100)				DNEL = 0.31mg/m <sup>3</sup>

#### Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water sediment		Microorganisms in sewage treatment	
2-Methoxyethanol 109-86-4 ( <=100 )	PNEC = 10mg/L	PNEC = 36.8mg/kg sediment dw	PNEC = 94mg/L	PNEC = 1000mg/L	PNEC = 1.87mg/kg soil dw

Component	Marine water	Marine water	Marine water	Food chain	Air

#### 2-Methoxyethanol

#### Revision Date 20-Oct-2023

		sediment	intermittent		
2-Methoxyethanol	PNEC = 1mg/L	PNEC = 3.68mg/kg		PNEC = 7.3mg/kg	
109-86-4 ( <=100 )	-	sediment dw		food	

#### 8.2. Exposure controls

#### **Engineering Measures**

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

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Eye Protection
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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	0.3 mm	EN 374	Resistance to Permeation by Chemicals
Skin and body prot	ection Long sle	eved clothing.		

Wear safety glasses with side shields (or goggles) (European standard - EN 166)

Inspect gloves before use.

Hand Protection

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

Environmental exposure controls N

No information available.

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

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

Physical State	Liquid
Appearance	Colorless
Odor	Faint ethereal
Odor Threshold	No data available
Melting Point/Range	-85 °C / -121 °F
Softening Point	No data available

#### Revision Date 20-Oct-2023

2-M	letho	xvet	nanol

Boiling Point/Range	124 °C / 255.2 °F	@ 760 mmHg
Flammability (liquid)	Flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 1.8 Vol%	
·	Upper 20 Vol%	
Flash Point	38 °C / 100.4 °F	Method - No information available
Autoignition Temperature	285 °C / 545 °F	
Decomposition Temperature	No data available	
pH	4-7 @ 20°C	200 g/l aq.sol
Viscosity	1.98 cP @ 20°C	
Water Solubility	Soluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/w	vater)	
Component	log Pow	
2-Methoxyethanol	-0.77	
Vapor Pressure	9.5 mmHg @ 25°C	
Density / Specific Gravity	0.960	
Bulk Density	Not applicable	Liquid
Vapor Density	2.6	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	
9.2. Other information		

**Molecular Formula Molecular Weight Explosive Properties Evaporation Rate** 

#### C3 H8 O2 76.09 explosive air/vapour mixtures possible 0.5 - (Butyl Acetate = 1.0)

## **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Reacts with air to form peroxides.
10.3. Possibility of hazardous react	ions
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
<u>10.4. Conditions to avoid</u>	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Excess heat. Exposure to light. Exposure to air over prolonged period.
10.5. Incompatible materials	Strong oxidizing agents. Acids. Bases. Copper alloys. copper.
10.6. Hazardous decomposition pro	oducts_

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

## **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
2-Methoxyethanol	LD50 = 2370 mg/kg (Rat)	LD50 = 1280 mg/kg(Rabbit)	LC50 = 1478 ppm (Rat)7 h

(b) skin corrosion/irritation;	Based on available data, the classification criteria are not met
(c) serious eye damage/irritation;	Based on available data, the classification criteria are not met
(d) respiratory or skin sensitization; Respiratory 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;	Based on available data, the classification criteria are not met
	There are no known carcinogenic chemicals in this product
(g) reproductive toxicity; Reproductive Effects Teratogenicity	No data available Category 1B. Teratogenic effects have occurred in experimental animals.
(h) STOT-single exposure;	Category 1
Results / Target organs	Immune system.
(i) STOT-repeated exposure;	Category 2
Target Organs	Thymus.
(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

Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae
2-Methoxyethanol	LC50: = 9650 mg/L, 96h static		

#### 2-Methoxyethanol

(Lepomis macrochirus) LC50: = 16000 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 10000 mg/L, 96h static (Lepomis macrochirus)	
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## 12.2. Persistence and degradabilityReadily biodegradablePersistencePersistence is unlikely.

#### **12.3. Bioaccumulative potential** Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
2-Methoxyethanol	-0.77	No data available

<u>12.4. Mobility in soil</u>	The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils
<u>12.5. Results of PBT and vPvB</u> assessment	Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB).
<u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors
12.7. Other adverse effects	

Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

## **SECTION 13: DISPOSAL CONSIDERATIONS**

13.1. Waste treatment methods	
Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations.

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

14.1. UN number 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN1188 ETHYLENE GLYCOL MONOMETHYL ETHER 3 III
ADR	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN1188 ETHYLENE GLYCOL MONOMETHYL ETHER 3 III
ΙΑΤΑ	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> 14.4. Packing group	UN1188 ETHYLENE GLYCOL MONOMETHYL ETHER 3 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

2-Methoxyethanol

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

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
2-Methoxyethanol	109-86-4	203-713-7	-	-	Х	Х	KE-23272	Х	Х
Component	CAS No	TSCA	notific	ventory ation - Inactive	DSL	NDSL	AICS	NZIoC	PICCS
2-Methoxyethanol	109-86-4	Х	ACT		Х	-	Х	Х	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	5	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
2-Methoxyethanol	109-86-4	-	Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 203-713-7 - Toxic for reproduction, Article 57c

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

#### **REACH links**

https://echa.europa.eu/authorisation-list https://echa.europa.eu/substances-restricted-under-reach https://echa.europa.eu/candidate-list-table

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

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report	
		Notification	Requirements	
2-Methoxyethanol	109-86-4	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

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

#### 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
2-Methoxyethanol	WGK 2	

Component	France - INRS (Tables of occupational diseases)
2-Methoxyethanol	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
2-Methoxyethanol 109-86-4 ( <=100 )		Group I	

#### 15.2. Chemical safety assessment

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

## **SECTION 16: OTHER INFORMATION**

Full text of H-Statements referred to under sections 2 and 3 H302 - Harmful if swallowed H312 - Harmful in contact with skin H332 - Harmful if inhaled H370 - Causes damage to organs H360FD - May damage fertility. May damage the unborn child H373 - May cause damage to organs through prolonged or repeated exposure H226 - Flammable liquid and vapor Legend **CAS** - Chemical Abstracts Service TSCA - United States Toxic Substances Control Act Section 8(b) Inventorv EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances Substances List **PICCS** - Philippines Inventory of Chemicals and Chemical Substances **ENCS** - Japanese Existing and New Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances AICS - Australian Inventory of Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances NZIOC - New Zealand Inventory of Chemicals WEL - Workplace Exposure Limit TWA - Time Weighted Average IARC - International Agency for Research on Cancer ACGIH - American Conference of Governmental Industrial Hygienists **DNEL** - Derived No Effect Level Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50% **RPE** - Respiratory Protective Equipment LC50 - Lethal Concentration 50% EC50 - Effective Concentration 50% NOEC - No Observed Effect Concentration POW - Partition coefficient Octanol:Water PBT - Persistent, Bioaccumulative, Toxic vPvB - very Persistent, very Bioaccumulative ADR - European Agreement Concerning the International Carriage of ICAO/IATA - International Civil Aviation Organization/International Air Dangerous Goods by Road Transport Association IMO/IMDG - International Maritime Organization/International Maritime MARPOL - International Convention for the Prevention of Pollution from Dangerous Goods Code Ships **OECD** - Organisation for Economic Co-operation and Development ATE - Acute Toxicity Estimate BCF - Bioconcentration factor VOC - (Volatile Organic Compound) Key literature references and sources for data https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

#### **Training Advice**

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

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

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

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

Creation Date	22-Oct-2009
Revision Date	20-Oct-2023
Revision Summary	Not 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