

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

Creation Date 13-Oct-2009

Revision Date 24-Nov-2023

Revision Number 14

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

1.1. Product identifier

Product Description:	Ethyl acetate
Cat No. :	BP1125-1
Synonyms	Acetic acid ethyl ester
Index No	607-022-00-5
CAS No	141-78-6
EC No	205-500-4
Molecular Formula	C4 H8 O2
REACH registration number	-

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

Com	pany

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

Ethyl acetate

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Physical hazards

Flammable liquids

Health hazards

Serious Eye Damage/Eye Irritation Specific target organ toxicity - (single exposure)

Environmental hazards Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

H225 - Highly flammable liquid and vapor

H319 - Causes serious eye irritation

H336 - May cause drowsiness or dizziness

EUH066 - Repeated exposure may cause skin dryness or cracking

Precautionary Statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P240 - Ground and bond container and receiving equipment

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

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

2.3. Other hazards

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

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
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Category 2 (H225)

Category 2 (H319) Category 3 (H336)

Ethyl acetate

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Ethyl acetate	141-78-6	EEC No. 205-500-4	<=100	Flam. Liq. 2 (H225)
				Eye Irrit. 2 (H319)
				STOT SE 3 (H336)
				EUH066

REACH registration number

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. Get medical attention.				
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.				
Ingestion	Clean mouth with water and drink afterwards plenty of water.				
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.				
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. May cause central nervous system depression: 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

Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

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.

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.

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.

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

Ensure adequate ventilation. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

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 container tightly closed in a dry and well-ventilated place.

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

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

Ethyl acetate

(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
Ethyl acetate	STEL: 1468 mg/m ³ 15 min	TWA: 734 mg/m ³ (8h)	TWA: 734 mg/m ³ 8 hr.
	STEL: 400 ppm 15 min	TWA: 200 ppm (8h)	TWA: 200 ppm 8 hr.
	TWA: 734 mg/m ³ 8 hr	STEL: 1468 mg/m ³ (15min)	STEL: 1468 mg/m ³ 15 min
	TWA: 200 ppm 8 hr	STEL: 400 ppm (15min)	STEL: 400 ppm 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 acetate 141-78-6(<=100)				DNEL = 63mg/kg bw/day

Component	Acute effects local	Acute effects	Chronic effects local	Chronic effects
	(Inhalation)	systemic (Inhalation)	(Inhalation)	systemic (Inhalation)
Ethyl acetate	DNEL = 1468 mg/m ³	DNEL = 1468 mg/m ³	DNEL = 734 mg/m ³	DNEL = 734mg/m ³
141-78-6 (<=100)	400 ppm	400 ppm	200 ppm	

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
		sediment		sewage treatment	
Ethyl acetate	PNEC = 0.24mg/L	PNEC = 1.15mg/kg	PNEC = 1.65mg/L	PNEC = 650mg/L	PNEC =
141-78-6 (<=100)	-	sediment dw	-		0.148mg/kg soil dw

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Ethyl acetate	PNEC = 0.024mg/L	PNEC =		PNEC = 0.2g/kg	
141-78-6 (<=100)		0.115mg/kg		food	
		sediment dw			

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166) **Hand Protection** Protective gloves Breakthrough time Glove thickness EU standard **Glove comments Glove material** Butyl rubber > 120 minutes 0.5 - 0.7 mm EN 374 Level 4 Permeation rate 8 µg/cm2/min Nitrile rubber < 200 minutes As tested under EN374-3 Determination of

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			Resistance to Permeation by Chemicals
PVA	> 360 minutes	0.3 mm	······,
Nitrile rubber	< 30 minutes	0.38 mm	
		and all all the last	

Skin and body protection Long sleeved clothing.

Inspect gloves before use.

Ethyl acetate

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	No protective equipment is needed under normal use conditions.
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
Small scale/Laboratory use	Maintain adequate ventilation

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	Colorless	
Odor	sweet	
Odor Threshold	50 ppm	
Melting Point/Range	-83.5 °C / -118.3 °F	
Softening Point	No data available	
Boiling Point/Range	75 - 78 °C / 167 - 172.4 °F	
Flammability (liquid)	Highly flammable	On basis of test data
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	Lower 2 Vol%	
	Upper 12 Vol%	
Flash Point	-4 °C / 24.8 °F	Method - CC (closed cup)
Autoignition Temperature	427 °C / 800.6 °F	
Decomposition Temperature	No data available	
рН	No information available	
Viscosity	0.45 cP @ 20 °C	Dynamic
Water Solubility	80 g/l	20 °C
Solubility in other solvents	Miscible Alcohol acetone	
Partition Coefficient (n-octanol/wate		
Component	log Pow	
Ethyl acetate	0.73	
Vapor Pressure	103 mbar @ 20°C	
Density / Specific Gravity	0.902	@ 20 °C
Bulk Density	Not applicable	Liquid
Vapor Density	3.04	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	
9.2. Other information		
Molecular Formula	C4 H8 O2	
Molecular Weight	88.11	

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Ethyl acetate

Explosive Properties Oxidizing Properties

Evaporation Rate Surface tension

Not explosive Vapors may form explosive mixtures with air Not oxidising (based on the chemical structure of the substance and oxidation states of the constituent elements) 6.2 - (Butyl Acetate = 1.0) 24 mN/m @ 20°C

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 reacti	ons_
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
10.4. Conditions to avoid	Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.
10.5. Incompatible materials	Strong oxidizing agents. Strong acids. Amines. Peroxides.

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;OralBased on available data, the classification criteria are not metDermalBased on available data, the classification criteria are not metInhalationBased on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl acetate	10,200 mg/kg(Rat)	>20 mL/kg(Rabbit) >18000 mg/kg (Rabbit)	58 mg/l (rat; 8 h)

(b) skin corrosion/irritation;	Based on available data, the classification criteria are not met
Test method	OECD 404
Test species	rabbit
Observational endpoint	No skin irritation
	Cotoson 2

(c) serious eye damage/irritation;	Category 2
Test method	OECD 405
Test species	rabbit eye
Observation end point	Irritating to eyes

(d) respiratory or skin sensitization;

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Ethyl acetate

Respiratory Skin Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl acetate	OECD Test Guideline 406	guinea pig	- non-sensitising
141-78-6(<=100)			

(e) germ cell mutagenicity;

Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Ethyl acetate 141-78-6(<=100)	OECD Test Guideline 471 AMES test	in vitro Bacteria	negative
	OECD Test Guideline 473 Chromosomal aberration assay	in vitro Mammalian	negative
	OECD Test Guideline 476 Gene cell mutation	in vitro Mammalian	negative
	OECD Test Guideline 474 Mouse micronucleus assay	in vivo Mammalian	negative

(f) carcinogenicity;

Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

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

g) reproductive toxicity, Based on available data, the blassification ontend are not mot			
Component	Test method	Test species / Duration	Study result
Ethyl acetate 141-78-6 (<=100)	OECD Test Guideline 416	Oral mouse 2 Generation	NOAEL = 26400 mg/kg bw/day
	OECD Test Guideline 414	Inhalation Rat	NOAEC = 73300 mg/m ³

(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS).

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

Test method Test species / Duration Study result	EPA OTS 795.2600 Rat / 90 days NOAEL = 900 mg/kg bw/day LOAEL = 3600 mg/kg	EPA OTS 798.2450 Rat / 90 days NOEC = 1.28 mg/l
Route of exposure	Oral	Inhalation
Target Organs	None known.	
(j) aspiration hazard;	Based on available data, the classification	criteria are not met
Symptoms / effects,both acute and delayed	 May cause central nervous system depress cause symptoms like headache, dizziness, 	sion. Inhalation of high vapor concentrations may tiredness, nausea and vomiting.

11.2. Information on other hazards

Endocrine Disrupting Properties	Assess endocrine disrupting properties for human health. known or suspected endocrine disruptors.	This product does not contain any

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Do not empty into drains.

Freshwater Fish	Water Flea	Freshwater Algae
athead minnow: LC50: 230 mg/l/ 96h	EC50 = 717 mg/L/48h	EC50 = 3300 mg/L/48h
	athead minnow: LC50: 230	athead minnow: LC50: 230 EC50 = 717 mg/L/48h mg/l/ 96h

Component	Microtox	M-Factor
Ethyl acetate	EC50 = 1180 mg/L 5 min	
	EC50 = 1500 mg/L 15 min	
	EC50 = 5870 mg/L 15 min	
	EC50 = 7400 mg/L 2 h	

12.2. Persistence and degradability Readily biodegradable

Persistence Persistence is unlikely, based on information available.

Component	Degradability
Ethyl acetate	79 % (20 d) (OECD 301 D)
141-78-6 (<=100)	

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Ethyl acetate	0.73	30 dimensionless

12.4. Mobility in soil Surface tension	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air 24 mN/m @ 20°C
<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
<u>12.7. Other adverse effects</u> Persistent Organic Pollutant	This product does not contain any known or suspected substance

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

Ethyl acetate

<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>	UN1173 ETHYL ACETATE 3 II
ADR	
<u>14.1. UN number</u> 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN1173 ETHYL ACETATE 3 II
IATA	
<u>14.1. UN number</u> 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN1173 ETHYL ACETATE 3 II
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)

CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
141-78-6	205-500-4	-	-	Х	Х	KE-00047	Х	Х
CAS No	TSCA	notific	ation -	DSL	NDSL	AICS	NZIoC	PICCS
141-78-6				Y		v	Y	v
	141-78-6 CAS No	141-78-6 205-500-4 CAS No TSCA	141-78-6 205-500-4 - CAS No TSCA TSCA In notific Active-I	141-78-6 205-500-4 - CAS No TSCA TSCA Inventory notification - Active-Inactive	141-78-6 205-500-4 - X CAS No TSCA TSCA Inventory notification - Active-Inactive DSL	141-78-6 205-500-4 - X X CAS No TSCA TSCA Inventory notification - Active-Inactive DSL NDSL	141-78-6 205-500-4 - X X KE-00047 CAS No TSCA TSCA Inventory notification - Active-Inactive DSL NDSL AICS	141-78-6 205-500-4 - X X KE-00047 X CAS No TSCA TSCA Inventory notification - Active-Inactive DSL NDSL AICS NZIOC

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 acetate	141-78-6	-	Use restricted. See item 75. (see link for restriction details)	-

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 Notification	Requirements
Ethyl acetate	141-78-6	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Ethyl acetate	WGK1	

Component	France - INRS (Tables of occupational diseases)
Ethyl acetate	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 acetate 141-78-6 (<=100)		Group I	

15.2. Chemical safety assessment

Ethyl acetate

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 H225 - Highly flammable liquid and vapor H319 - Causes serious eye irritation H336 - May cause drowsiness or dizziness EUH066 - Repeated exposure may cause skin dryness or cracking Legend **CAS** - Chemical Abstracts Service TSCA - United States Toxic Substances Control Act Section 8(b) Inventory 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 ACGIH - American Conference of Governmental Industrial Hygienists IARC - International Agency for Research on Cancer **DNEL** - Derived No Effect Level Predicted No Effect Concentration (PNEC) **RPE** - Respiratory Protective Equipment LD50 - Lethal Dose 50% 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	13-Oct-2009
Revision Date	24-Nov-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