

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: <u>Ethyl acetate</u>

Cat No.: 423170000; 423170025; 423175000

**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

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

**Recommended Use** Laboratory chemicals.

Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

**Product category** PC21 - Laboratory chemicals

**Process categories** PROC15 - Use as a laboratory reagent

**Environmental release category** ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Uses advised against No Information available

#### 1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name

Fisher Scientific UK Bishop Meadow Road.

Loughborough, Leicestershire LE11 5RG, United Kingdom

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

Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

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** 

ACR42317

Ethyl acetate Revision Date 24-Nov-2023

Flammable liquids Category 2 (H225)

**Health hazards** 

Serious Eye Damage/Eye Irritation Category 2 (H319)
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**

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

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 (CO<sub>2</sub>).

## 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 (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 <sup>3</sup> 15 min	TWA: 734 mg/m <sup>3</sup> (8h)	TWA: 734 mg/m <sup>3</sup> 8 hr.
·	STEL: 400 ppm 15 min	TWA: 200 ppm (8h)	TWA: 200 ppm 8 hr.
	TWA: 734 mg/m <sup>3</sup> 8 hr	STEL: 1468 mg/m <sup>3</sup> (15min)	STEL: 1468 mg/m <sup>3</sup> 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				DNEL = 63mg/kg
141-78-6 ( <=100 )				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 <sup>3</sup>	DNEL = 1468 mg/m <sup>3</sup>	DNEL = 734 mg/m <sup>3</sup>	DNEL = $734$ mg/m <sup>3</sup>
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

Г	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
	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
					Resistance to Permeation by Chemicals
	PVA	> 360 minutes	0.3 mm		·
	Nitrile rubber	< 30 minutes	0.38 mm		

Skin and body protection Long sleeved clothing.

Inspect gloves before use.

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

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** 

No protective equipment is needed under normal use conditions.

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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% -4 °C / 24 8 °l

Flash Point -4 °C / 24.8 °F Method - CC (closed cup)

Autoignition Temperature 427 °C / 800.6 °F Decomposition Temperature No data available

pH 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/water)

Componentlog PowEthyl acetate0.73

Vapor Pressure 103 mbar @ 20°C

Density / Specific Gravity0.902@ 20 °CBulk DensityNot applicableLiquidVapor Density3.04(Air = 1.0)

Particle characteristics Not applicable (liquid)

## 9.2. Other information

Molecular Formula C4 H8 O2 Molecular Weight 88.11

**Explosive Properties**Not explosive Vapors may form explosive mixtures with air

constituent elements)

**Evaporation Rate** 6.2 - (Butyl Acetate = 1.0)

Surface tension 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 reactions

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Hazardous Polymerization Hazardous polymerization does not occur.

**Hazardous Reactions**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

(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;

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

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(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(a) reproductive toxicity: Based on available data, the classification criteria are not met

Component	Test method	Test species / Duration	Study result
Ethyl acetate	OECD Test Guideline 416	Oral	NOAEL =
141-78-6 ( <=100 )		mouse	26400
		2 Generation	mg/kg bw/day
	OECD Test Guideline 414	Inhalation	NOAEC =
		Rat	73300 mg/m <sup>3</sup>

(h) STOT-single exposure; Category 3

Central nervous system (CNS). Results / Target organs

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

Test method EPA OTS 795.2600 EPA OTS 798.2450 **Test species / Duration** Rat / 90 days Rat / 90 days Study result NOAEL = 900 mg/kg bw/day NOEC = 1.28 mg/l

LOAEL = 3600 mg/kg

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 May cause central nervous system depression. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

delayed

## 11.2. Information on other hazards

Assess endocrine disrupting properties for human health. This product does not contain any **Endocrine Disrupting Properties** 

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
Ethyl acetate	Fathead minnow: LC50: 230 mg/l/ 96h Gold orfe: LC50: 270 mg/L/48h	EC50 = 717 mg/L/48h	EC50 = 3300 mg/L/48h

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

Componentlog PowBioconcentration factor (BCF)Ethyl acetate0.7330 dimensionless

12.4. Mobility in soil

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

aır

Surface tension 24 mN/m @ 20°C

12.5. Results of PBT and vPvB

assessment

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

and very bioaccumulative (vPvB).

12.6. Endocrine disrupting

properties

**Endocrine Disruptor Information** 

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

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

## **SECTION 13: DISPOSAL CONSIDERATIONS**

#### 13.1. Waste treatment methods

Waste from Residues/Unused

**Products** 

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty container to hazardous or special waste collection point.

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** UN1173

**14.2. UN proper shipping name** ETHYL ACETATE

14.3. Transport hazard class(es) 3 14.4. Packing group II

#### ADR

<u>14.1. UN number</u> UN1173

14.2. UN proper shipping name ETHYL ACETATE

14.3. Transport hazard class(es) 3 14.4. Packing group II

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#### IATA

**14.1. UN number** UN1173

14.2. UN proper shipping name ETHYL ACETATE

14.3. Transport hazard class(es) 3 14.4. Packing group 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**

Component

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)

Ethyl acetate	141-78-6	205-500-4	-	ı	X	X	KE-00047	X	X
Component	CAS No	TSCA		ventory ation - Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Ethyl acetate	141-78-6	X	ACT	IVE	Х	ı	X	X	X

CAS No EINECS ELINCS NLP IECSC TCSI

ISHL

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 (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	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) -
1		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		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

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

Substances List

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

**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

PBT - Persistent, Bioaccumulative, Toxic

**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

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

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Dangerous Goods Code MARPOL - International Convention for the Prevention of Pollution from

Ships

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

**BCF** - Bioconcentration factor

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

#### **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 Date13-Oct-2009Revision Date24-Nov-2023Revision SummaryNot applicable.

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

#### **Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## **End of Safety Data Sheet**