

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

Creation Date 26-Oct-2010 Revision Date 25-Jan-2024 Revision Number 4

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

## 1.1. Product identifier

Product Description: n-Butyl methacrylate

Cat No. : A19068

Synonyms Butyl 2-methacrylate; Butyl 2-methyl-2-propenoate; Methacrylic acid, butyl ester

 Index No
 607-033-00-5

 CAS No
 97-88-1

 EC No
 202-615-1

 Molecular Formula
 C8 H14 O2

REACH registration number -

## 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

Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific)

Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom

Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

**E-mail address** begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99 **CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

# **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

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

# **Physical hazards**

Flammable liquids Category 3 (H226)

ALFAAA19068

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#### **Health hazards**

Skin Corrosion/Irritation Category 2 (H315)
Serious Eye Damage/Eye Irritation Category 2 (H319)
Skin Sensitization Category 1 (H317)
Specific target organ toxicity - (single exposure) Category 3 (H335)

#### **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

#### Warning

#### **Hazard Statements**

H226 - Flammable liquid and vapor

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eve irritation

H335 - May cause respiratory irritation

## **Precautionary Statements**

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

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

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

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

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

#### 2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB) Lachrymator (substance which increases the flow of tears)

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
Butyl methacrylate	97-88-1	EEC No. 202-615-1	100	Flam. Liq. 3 (H226) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Skin Sens. 1 (H317) STOT SE 3 (H335)

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4-Methoxyphenol	150-76-5	EEC No. 205-769-8	0.001-0.011	Acute Tox. 4 (H302)
				Skin Sens. 1 (H317)
				Eye Irrit. 2 (H319)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Butyl methacrylate	STOT SE 3 (H335) :: C>=10%	-	-

REACH registration number	-

Full text of Hazard Statements: see section 16

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

#### 4.1. Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention immediately if irritation persists.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes. Get medical attention.

**Ingestion** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Drink

plenty of water. If possible drink milk afterwards.

**Inhalation** Remove from exposure, lie down. Remove to fresh air. If breathing is difficult, give oxygen.

If not breathing, give artificial respiration. Get medical attention.

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 allergic skin reaction. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

# 4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

## **SECTION 5: FIREFIGHTING MEASURES**

# 5.1. Extinguishing media

#### **Suitable Extinguishing Media**

Water spray. Carbon dioxide (CO<sub>2</sub>). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Do not use a solid water stream as it may scatter and spread fire. Water mist may be used to cool closed containers.

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

No information available.

# 5.2. Special hazards arising from the substance or mixture

Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

## **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

Remove all sources of ignition. Take precautionary measures against static discharges.

## 6.2. Environmental precautions

See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.

## 6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). 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

Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Handle product only in closed system or provide appropriate exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition. 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

Keep in a dry place. Keep container tightly closed. Keep away from heat, sparks and flame. Refrigerator/flammables.

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): IRE - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

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#### n-Butyl methacrylate

ComponentThe United KingdomEuropean UnionIreland4-MethoxyphenolTWA: 5 mg/m³ 8 hr.<br/>STEL: 15 mg/m³ 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)
Butyl methacrylate	DNEL = 1% in mixture		DNEL = 1% in mixture	DNEL = 5mg/kg bw/day
97-88-1 ( 100 )	(weight basis)		(weight basis)	

Component	Acute effects local	Acute effects	Chronic effects local	Chronic effects
	(Inhalation)	systemic (Inhalation)	(Inhalation)	systemic (Inhalation)
Butyl methacrylate 97-88-1 (100)			DNEL = 409mg/m <sup>3</sup>	DNEL = 415.9mg/m <sup>3</sup>
4-Methoxyphenol 150-76-5 ( 0.001-0.011 )				DNEL = 3mg/m <sup>3</sup>

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

See values below.

Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
		sediment		sewage treatment	
Butyl methacrylate	PNEC =	PNEC = 4.73 mg/kg	PNEC = 0.056mg/L	PNEC = 31.7mg/L	PNEC =
97-88-1 ( 100 )	0.0169mg/L	sediment dw	-	_	0.935mg/kg soil dw
4-Methoxyphenol	PNEC =	PNEC =		PNEC = 10mg/L	PNEC =
150-76-5 ( 0.001-0.011 )	0.0136mg/L	0.125mg/kg		-	0.017mg/kg soil dw
•		sediment dw			- <b>-</b>

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Butyl methacrylate	PNEC =	PNEC =			
97-88-1 ( 100 )	0.00169mg/L	0.473mg/kg sediment dw			
4-Methoxyphenol	PNEC =	PNEC =			
150-76-5 ( 0.001-0.011 )	0.00136mg/L	0.0125mg/kg			
		sediment dw			

## 8.2. Exposure controls

# **Engineering Measures**

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

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

Γ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
	Nitrile rubber	See manufacturers		EN 374	(minimum requirement)
	Neoprene	recommendations			

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Natural rubber **PVC** 

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Inspect gloves before use.

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

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

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

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

are exceeded or if irritation or other symptoms are experienced

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

EN14387

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

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

**Environmental exposure controls** Prevent product from entering drains.

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

# 9.1. Information on basic physical and chemical properties

**Physical State** Liquid

**Appearance** Colorless Odor aromatic

**Odor Threshold** No data available **Melting Point/Range** -75 °C / -103 °F **Softening Point** No data available

**Boiling Point/Range** 160 - 163 °C / 320 - 325.4 °F

Flammability (liquid) Flammable On basis of test data

Flammability (solid,gas) Not applicable Liquid

**Explosion Limits** Lower 2

Upper 8

**Flash Point** 41 °C / 105.8 °F Method - No information available

290 °C / 554 °F **Autoignition Temperature** No data available **Decomposition Temperature** рΗ No information available mPa s at 20 °C **Viscosity** 1.1

Water Solubility 3 q/l

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Butyl methacrylate 2.99 4-Methoxyphenol 1.3

Vapor Pressure 3 mbar @ 20 °C

0.890 **Density / Specific Gravity** 

**Bulk Density** Not applicable Liquid **Vapor Density** 4.8 (Air = 1.0)

Particle characteristics Not applicable (liquid)

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#### 9.2. Other information

Molecular Formula C8 H14 O2 Molecular Weight 142.2

**Explosive Properties** explosive air/vapour mixtures possible

**Self-accelerating polymerisation** >55°C (packages up to 50kg)

temperature (SAPT) Heat of Polymerization (KJ/Mole) = 56.6

# **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 may occur.

Hazardous Reactions No information available.

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Exposure

to light. Incompatible products.

10.5. Incompatible materials

Acids. Bases. Strong oxidizing agents. Peroxides. Reducing Agent.

10.6. Hazardous decomposition products

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

# **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
Butyl methacrylate	LD50 = 16 g/kg (Rat)	LD50 = 11300 mg/kg ( Rabbit )	LC50 = 4910 ppm (Rat) 4 h
4-Methoxyphenol	1600 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	-

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

Respiratory No data available Skin Category 1

May cause sensitization by skin contact

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(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Respiratory system. Results / Target organs

No data available (i) STOT-repeated exposure;

No information available. **Target Organs** 

No data available (j) aspiration hazard;

delayed

Symptoms / effects,both acute and Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

#### 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** Contains no substances known to be hazardous to the environment or that are not

degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Butyl methacrylate		EC50: = 32 mg/L, 48h (Daphnia	
	flow-through (Pimephales promelas)	magna)	(Pseudokirchneriella subcapitata)
4-Methoxyphenol	LC50: = 28.5 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: = 84.3 mg/L, 96h flow-through (Pimephales promelas)		

Component	Microtox	M-Factor
Butyl methacrylate	EC50 = 37 mg/L 5 min	
	EC50 = 49 mg/L 15 min	
	EC50 = 55 mg/L 30 min	
	EC50 > 253.6 mg/L 18 h	
4-Methoxyphenol	EC50 = 3.66 mg/L 5 min	
	EC50 = 4.30 mg/L 15 min	
	EC50 = 4.61 mg/L 30 min	

## 12.2. Persistence and degradability

Soluble in water, Persistence is unlikely, based on information available. **Persistence** 

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

Component	log Pow	Bioconcentration factor (BCF)
Butyl methacrylate	2.99	No data available
4-Methoxyphenol	1.3	No data available

12.4. Mobility in soil 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

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 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 Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Can be landfilled or incinerated, when in

compliance with local regulations.

## **SECTION 14: TRANSPORT INFORMATION**

## IMDG/IMO

**14.1. UN number** UN2227

14.2. UN proper shipping name BUTYL METHACRYLATE, STABILIZED

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

**ADR** 

**14.1. UN number** UN2227

14.2. UN proper shipping name n-BUTYL METHACRYLATE, STABILIZED

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

<u>IATA</u>

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**14.1. UN number** UN2227

14.2. UN proper shipping name n-BUTYL METHACRYLATE, STABILIZED

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

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user Inhibitors have been added to stabilize this product. Inhibitor levels should be maintained.

Hazardous polymerization may occur upon depletion of inhibitor.

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
Butyl methacrylate	97-88-1	202-615-1	ı	-	X	X	KE-24922	Χ	X
4-Methoxyphenol	150-76-5	205-769-8	-	-	X	Χ	KE-23353	X	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Butyl methacrylate	97-88-1	X	ACTIVE	X	Ī	X	X	X
4-Methoxyphenol	150-76-5	Х	ACTIVE	X	-	X	X	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 XVII - Restrictions	
		Subject to Authorization		Candidate List of
			Substances	Substances of Very High Concern (SVHC)
Butyl methacrylate	97-88-1	-	Use restricted. See item	-
, ,			75.	
			(see link for restriction	
			details)	
4-Methoxyphenol	150-76-5	-	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	Qualifying Quantities for Safety Report
		Notification	Requirements
Butyl methacrylate	97-88-1	Not applicable	Not applicable
4-Methoxyphenol	150-76-5	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

#### n-Butyl methacrylate

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 .

## **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
Butyl methacrylate	WGK1	
4-Methoxyphenol	WGK1	

Component	France - INRS (Tables of occupational diseases)
Butyl methacrylate	Tableaux des maladies professionnelles (TMP) - RG 65
4-Methoxyphenol	Tableaux des maladies professionnelles (TMP) - RG 65

#### 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

H226 - Flammable liquid and vapor

H302 - Harmful if swallowed

H315 - Causes skin irritation

H317 - May cause an allergic skin reaction

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

#### Legend

**CAS** - Chemical Abstracts Service

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

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

PICCS - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances

Substances List **ENCS** - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration 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

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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

#### **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.

**Prepared By** Health, Safety and Environmental Department

**Creation Date** 26-Oct-2010 **Revision Date** 25-Jan-2024

**Revision Summary** New emergency telephone response service provider.

# 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**