

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

Creation Date 19-Oct-2010

Revision Date 16-Mar-2024

Revision Number 4

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

1.1. Product identifier

Product Description:	Glutaraldehyde, 25% aq. soln.
Cat No. :	A17876
Synonyms	Glutaraldehyde; Pentanedial

Unique Formula Identifier (UFI) XYFG-U22D-5X04-KKMY

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	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
<u>1.4. Emergency telephone number</u>	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
Poison Centre - Emergency information services	Ireland : National Poisons Information Centre (NPIC) - 01 809 2166 (8am-10pm, 7 days a week) Malta : +356 2395 2000 Cyprus : +357 2240 5611

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

Glutaraldehyde, 25% ag. soln.

Physical hazards	
Based on available data, the classification criteria are not met	
Health hazards	
Acute oral toxicity	Category 4 (H302)
Acute Inhalation Toxicity - Dusts and Mists	Category 4 (H332)
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Respiratory Sensitization	Category 1 (H334)
Skin Sensitization	Category 1 (H317)
Environmental hazards	
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 2 (H411)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

H302 + H332 - Harmful if swallowed or if inhaled

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

H400 - Very toxic to aquatic life

H411 - Toxic to aquatic life with long lasting effects

EUH071 - Corrosive to the respiratory tract

Precautionary Statements

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

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

Corrosive to the respiratory tract Toxicity to Soil Dwelling Organisms Toxic to terrestrial vertebrates This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Water	7732-18-5	231-791-2	75	-
Glutaraldehyde	111-30-8	203-856-5	25	Acute Tox. 2 (H330) Acute Tox. 3 (H301) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411) EUH071

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Glutaraldehyde	STOT SE 3 (H335) :: 0.5%<=C<5%	1	-

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.				
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.				
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.				
Ingestion	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.				
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.				
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.				
4.2. Most important symptoms and effects, both acute and delayed					

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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

Notes to Physician

Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

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

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. 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. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. 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 containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. To maintain product quality: Keep

refrigerated.

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

Class 8B

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

Component	The United Kingdom	European Union	Ireland
Glutaraldehyde	STEL: 0.05 ppm 15 min		STEL: 0.05 ppm 15 min
	STEL: 0.2 mg/m ³ 15 min		STEL: 0.2 mg/m ³ 15 min
	TWA: 0.05 ppm 8 hr		_
	TWA: 0.2 mg/m ³ 8 hr		
	Resp. Sens.		

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	Acute effects	Chronic effects local	Chronic effects
	(Dermal)	systemic (Dermal)	(Dermal)	systemic (Dermal)
Glutaraldehyde 111-30-8 (25)				DNEL = 6.25mg/kg bw/day

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water			Microorganisms in	Soil (Agriculture)
		sediment		sewage treatment	
Glutaraldehyde	PNEC =	PNEC =	PNEC = 0.006mg/L	PNEC = 0.8mg/L	PNEC = 0.21mg/kg
111-30-8 (25)	0.0025mg/L	0.091mg/kg			soil dw
		sediment dw			

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Glutaraldehyde	PNEC =	PNEC =			
111-30-8 (25)	0.00025mg/L	0.009mg/kg			
		sediment dw			

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Glutaraldehyde, 25% aq. soln.

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 eq Eye Protection		Goggles (European standard - EN 166)			
Hand Protection	Protectiv	Protective gloves			
Glove material Butyl rubber	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)	
Skin and body prot	ection Long sle	eved clothing.			

Inspect gloves before use.

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

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

Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143 or Acid gases filter Type E Yellow 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 141 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Clear pungent No data available -5 °C / 23 °F No data available 101 °C / 213.8 °F No data available Not applicable No data available	@ 760 mmHg Liquid
Flash Point Autoignition Temperature Decomposition Temperature pH Viscosity Water Solubility Solubility in other solvents	No information available No data available No data available 2.9 No data available Soluble No information available	Method - No information available

SECTION 10: STABILITY AND REACTIVITY

Glutaraldehyde, 25% aq. soln.

Partition Coefficient (n-octanol/water)

Component Glutaraldehyde Vapor Pressure Density / Specific Gravity Bulk Density Vapor Density Particle characteristics log Pow -0.36 16.4 mmhg @ 20 °C 1.060 Not applicable No data available Not applicable (liquid)

Liquid (Air = 1.0)

9.2. Other information

10.1. ReactivityNone known, based on information available10.2. Chemical stabilityStable under normal conditions.10.3. Possibility of hazardous reactionsHazardous PolymerizationHazardous Polymerization
Hazardous ReactionsHazardous polymerization does not occur.
None under normal processing.10.4. Conditions to avoid
10.5. Incompatible materialsHazardous Strong acids. Strong oxidizing agents. Strong acids. Strong bases. Alcohols. Amines.

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;

 Oral
 Category 4

 ATE = 308 mg/kg

 Dermal
 Based on ATE data, the classification criteria are not met

 Inhalation
 Category 4

 ATE = 1.12 - 1.56 mg/l 4h

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	_
Glutaraldehyde	77 mg/kg(Rat)	>2500 mg/kg(Rat)	0.28 - 0.39 mg/L (Rat) 4 h

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory No data available Skin

No data available

Component	Test method	Test species	Study result
Glutaraldehyde	Local Lymph Node Assay	mouse	Sensitization
111-30-8 (25)			

May cause sensitization by skin contact

(e) germ cell mutagenicity;

No data available

Component	Test method	Test species	Study result
Glutaraldehyde 111-30-8 (25)	in vitro OECD Test Guideline 473 Mammalian	in vitro Mammalian	Positive
	in vivo OECD Test Guideline 474	in vivo mouse Animal germ cell	negative

(f) carcinogenicity;

No data available

Component	Test method	Test species / Duration	Study result
Glutaraldehyde	OECD Test Guideline 451	Rat / 2 years	negative
111-30-8 (25)			NOAEL = 100 ppm

There are no known carcinogenic chemicals in this product

No data available (q) reproductive toxicity:

Component	Test method	Test species / Duration	Study result
Glutaraldehyde	OECD Test Guideline 414	Rat	negative
111-30-8 (25)			-

- No data available (h) STOT-single exposure;
- (i) STOT-repeated exposure; No data available
- No information available. **Target Organs**

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.

Symptoms / effects, both acute and Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. delayed Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. 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

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Glutaraldehyde	LC50: 7.8 - 22 mg/L, 96h static (Lepomis macrochirus) LC50: 2.6 - 4.8 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 7.8 - 13 mg/L, 96h static (Oncorhynchus mykiss) LC50: = 5.4 mg/L, 96h static (Pimephales promelas)	Static (Daphnia magna) EC50: = 14 mg/L, 48h (Daphnia magna)	EC50: = 0.61 mg/L, 72h (Desmodesmus subspicatus) EC50: = 0.84 mg/L, 96h (Desmodesmus subspicatus)

Component	Microtox	M-Factor
Glutaraldehyde	EC50 = 13.3 mg/L 17 h	1
	EC50 = 76.0 mg/L 5 min	

Component	log Pow	Bioconcentration factor (BCF)
12.3. Bioaccumulative potential	Bioaccumulation is unlikely	
Degradation in sewage treatment plant	water. Contains substances known to be hazardous t water treatment plants.	to the environment or not degradable in waste
12.2. Persistence and degradability Persistence	Miscible with water, Persistence is unlikely, ba	ased on information available, Soluble in

Component	log Pow	Bioconcentration factor (BCF)
Glutaraldehyde	-0.36	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	No data available for assessment.
<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	Should not be released into the environment. 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.
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. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3265 Corrosive liquid, acidic, organic, n.o.s. Glutaric dialdehyde 8 II
ADR	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3265 Corrosive liquid, acidic, organic, n.o.s. Glutaric dialdehyde 8 II
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3265 Corrosive liquid, acidic, organic, n.o.s. Glutaric dialdehyde 8 II
14.5. Environmental hazards	Dangerous for the environment Product is a marine pollutant according to the criteria set by IMDG/IMO
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

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

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Water	7732-18-5	231-791-2	-	-	Х	Х	KE-35400	Х	-
Glutaraldehyde	111-30-8	203-856-5	-	-	Х	Х	KE-27969	Х	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Water	7732-18-5	Х	ACTIVE	Х	-	Х	Х	Х
Glutaraldehyde	111-30-8	X	ACTIVE	Х	-	X	Х	X

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) - REACH (1907/2006) - REACH Regula	tion (EC
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Glutaraldehyde, 25% aq. soln.

Revision Date 16-Mar-2024

		Annex XIV - Substances Subject to Authorization		1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Glutaraldehyde	111-30-8	-	Use restricted. See item	SVHC Candidate list -
			75.	203-856-5 - Respiratory
			(see link for restriction	sensitising properties
			details)	(Article 57f - human health)

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/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 Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Not applicable	Not applicable
Glutaraldehyde	111-30-8	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 .

National Regulations

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

WGK Classification

Water endangering class = 3 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Glutaraldehyde	WGK3	Class I : 20 mg/m ³ (Massenkonzentration)

Component	France - INRS (Tables of occupational diseases)
Glutaraldehyde	Tableaux des maladies professionnelles (TMP) - RG 65,RG 66

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Glutaraldehyde, 25% aq. soln.

H332 - Harmful if inhaled H314 - Causes severe skin burns and H317 - May cause an allergic skin read H318 - Causes serious eye damage H334 - May cause allergy or asthma sy H335 - May cause respiratory irritation H400 - Very toxic to aquatic life H411 - Toxic to aquatic life with long la EUH071 - Corrosive to the respiratory H330 - Fatal if inhaled H301 - Toxic if swallowed	ction ymptoms or breathing diffi asting effects	culties if inhaled
	Le	gend
CAS - Chemical Abstracts Service EINECS/ELINCS - European Inventory of E Substances/EU List of Notified Chemical St PICCS - Philippines Inventory of Chemicals IECSC - Chinese Inventory of Existing Chemicals KECL - Korean Existing and Evaluated Chemicals	ubstances and Chemical Substances mical Substances	 TSCA - United States Toxic Substances Control Act Section 8(b) Inventory DSL/NDSL - Canadian Domestic Substances List/Non-Domestic 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 Governm 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 Dangerous Goods Code OECD - Organisation for Economic Co-operation and Development BCF - Bioconcentration factor Key literature references and sources for data https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, F		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)
Classification and procedure used t Physical hazards Health Hazards Environmental hazards	o derive the classification On basis of test data Calculation method Calculation method	on for mixtures according to Regulation (EC) 1272/2008 [CLP]:
Training Advice Chemical incident response training.		

Prepared By	Health, Safety and Environmental Department
Creation Date	19-Oct-2010
Revision Date	16-Mar-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