

according to Regulation (EC) No. 1907/2006

Creation Date 10-Mar-2010 Revision Date 26-Jan-2024 Revision Number 3

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

1.1. Product identifier

Product Description: Cobalt(II) chloride, anhydrous

Cat No. : B22031

Synonyms Cobalt dichloride; Cobaltous dichloride.

 Index No
 027-004-00-5

 CAS No
 7646-79-9

 EC No
 231-589-4

 Molecular Formula
 CI2 Co

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

Thermo Fisher (Kandel) GmbH

Erlenbachweg 2, 76870 Kandel, Germany

Tel: +49 (0) 721 84007 280 Fax: +49 (0) 721 84007 300

Swiss distributor - Fisher Scientific AG Neuhofstrasse 11. CH 4153 Reinach

Tel: +41 (0) 56 618 41 11

https://www.fishersci.ch/ch/en/customer-help-

support/forms/email-us.html

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

customers in Switzerland:

Tox Info Suisse Emergency Number: 145 (24hr)

Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)

Chemtrec (24h) Toll-Free: 0800 564 402 Chemtrec Local: +41-43 508 20 11 (Zurich)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

ALFAAB22031

CLP Classification - Regulation (EC) No 1272/2008

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) Serious Eye Damage/Eye Irritation Category 1 (H318) Respiratory Sensitization Category 1 (H334) Skin Sensitization Category 1 (H317) Germ Cell Mutagenicity Category 2 (H341) Carcinogenicity Category 1B (H350i) Reproductive Toxicity Category 1B (H360F)

Environmental hazards

Acute aquatic toxicity
Chronic aquatic toxicity
Category 1 (H400)
Category 1 (H410)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

- H410 Very toxic to aquatic life with long lasting effects
- H317 May cause an allergic skin reaction
- H318 Causes serious eye damage
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H341 Suspected of causing genetic defects
- H360F May damage fertility
- H350i May cause cancer by inhalation
- H302 + H332 Harmful if swallowed or if inhaled

Precautionary Statements

- P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water
- 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
- P280 Wear protective gloves/protective clothing/eye protection/face protection

Additional EU labelling

Restricted to professional users

2.3. Other hazards

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

Toxic to terrestrial vertebrates

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 - Regulation (EC) No 1272/2008
Cobalt chloride (CoCl2)	7646-79-9	EEC No. 231-589-4	>95	Acute Tox. 4 (H302)
				Acute Tox. 4 (H332)
				Eye Dam. 1 (H318)
				Resp. Sens. 1 (H334)
				Skin Sens. 1 (H317)
				Muta. 2 (H341)
				Carc. 1B (H350i)
				Repr. 1B (H360F)
				Aquatic Acute 1 (H400)
				Aquatic Chronic 1 (H410)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Cobalt chloride (CoCl2)	Carc. 1B (H350i) :: C>=0.01%	10	-

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 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. In

the case of contact with eyes, rinse immediately with plenty of water and seek medical

advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth

method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Immediate medical attention is required.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

None reasonably foreseeable. . Causes severe eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. 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

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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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, 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. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Hydrogen chloride gas.

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

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

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. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust, vapor, mist, gas). 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

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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.

Technical Rules for Hazardous Substances (TRGS) 510

Storage Class (LGK) (Germany)

Storage Class/LGK 6.1D

Switzerland - Storage of hazardous substances Storage class - SC 6.1

https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

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, Forth edition. Published 2020. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Cobalt chloride		Capable of causing			VLA-ED: 0.02 mg/m³ (as
(CoCl2)		cancer and/or heritable			Co)
		genetic damage			
		TWA: 0.1 mg/m³ (As			
		Co)			
		STEL: 0.3 mg/m ³ (As			
		Co)			

Component	Italy	Germany	Portugal	The Netherlands	Finland
Cobalt chloride		Haut	TWA: 0.02 mg/m ³ 8		TWA: 0.02 mg/m ³ 8
(CoCl2)			horas		tunteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Cobalt chloride	Haut		Haut/Peau		TWA: 0.02 mg/m ³ 8
(CoCl2)			TWA: 0.05 mg/m ³ 8		timer
1 ' '			Stunden		

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Cobalt chlorid	e	TWA-GVI: 0.1 mg/m ³ 8			
(CoCl2)		satima. Co			

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Cobalt chloride				TLV: 0.02 mg/m ³ 8	
(CoCl2)				timmar. Co NGV	
				Hud	

Biological limit values

List source(s):

Component	European Union	United Kingdom	France	Spain	Germany
Cobalt chloride			Cobalt: 0.001 mg/L		
(CoCl2)			blood end of shift at end		
			of workweek		
			Cobalt: 0.015 mg/L		
			urine end of shift at end		

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	of workweek		
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Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

Predicted No Effect Concentration (PNEC)

No information available.

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. 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

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

Skin and body protection Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) 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. gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use
noopii atory i rotootion	Triori workers are taking concentrations above the expectate 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

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:- Particle filtering: EN149:2001 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 Solid

Appearance Blue Odor Slight

Odor ThresholdNo data availableMelting Point/Range735 °C / 1355 °FSoftening PointNo data available

Boiling Point/Range 1049 °C / 1920.2 °F @ 760 mmHg

Flammability (liquid) Not applicable Solid

Flammability (solid,gas) No information available

Explosion Limits No data available

Flash Point No information available Method - No information available

Autoignition Temperature No data available

Decomposition Temperature No data available

pH 4.9 @ 20°C 50 g/l aq.sol

Viscosity Not applicable Solid

Water Solubility Soluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Componentlog PowCobalt chloride (CoCl2)0.85

Vapor Pressure40 mmHg @ 770 °CDensity / Specific GravityNo data availableBulk DensityNo data available

Vapor Density Not applicable Solid

Particle characteristics No data available

9.2. Other information

Molecular Formula CI2 Co Molecular Weight 129.84

Evaporation Rate Not applicable - Solid

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Avoid dust formation. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Hydrogen chloride gas.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

Oral Category 4 **Dermal** No data available Inhalation Category 4

Component		LD50 Oral	LD50 Dermal	LC50 Inhalation	
	Cobalt chloride (CoCl2)	586 mg/kg (Rat)	-	-	

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Category 1 Skin Category 1

May cause sensitization by skin contact

(e) germ cell mutagenicity; Category 2

Mutagenic effects have occurred in experimental animals

(f) carcinogenicity; Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Cobalt chloride (CoCl2)	Carc Cat. 1B			Group 2B

(g) reproductive toxicity; Category 1B **Reproductive Effects** May impair fertility.

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

No information available. **Target Organs**

(j) aspiration hazard; Not applicable

Solid

delayed

Symptoms / effects, both acute and 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

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the

environment.

Component Freshwater Fish		Water Flea	Freshwater Algae	
	Cobalt chloride (CoCl2)	Cyprinus carpio: LC50=0.33 mg/L 96h	1.1-1.6 mg/L 48h	

Component	Microtox	M-Factor
Cobalt chloride (CoCl2)		10

12.2. Persistence and degradability

Persistence

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

Degradability

Not relevant for inorganic substances.

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste

water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Cobalt chloride (CoCl2)	0.85	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

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not

require assessment.

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

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. Do not let this

chemical enter the environment.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and

regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance,

ADWO) SR 814.600

https://www.fedlex.admin.ch/eli/cc/2015/891/en

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN3077

14.2. UN proper shipping name Environmentally hazardous substances, solid, n.o.s.

Technical Shipping Name Cobalt (II) chloride

14.3. Transport hazard class(es) 9 14.4. Packing group III

<u>ADR</u>

14.1. UN number UN3077

14.2. UN proper shipping name Environmentally hazardous substances, solid, n.o.s.

Technical Shipping Name Cobalt (II) chloride

14.3. Transport hazard class(es) 9 **14.4. Packing group** III

IATA

14.1. UN number UN3077

14.2. UN proper shipping name Environmentally hazardous substances, solid, n.o.s.

Technical Shipping Name Cobalt (II) chloride

14.3. Transport hazard class(es) 9
14.4. Packing group III

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
Cobalt chloride (CoCl2)	7646-79-9	231-589-4	-	-	Х	Х	KE-06095	Х	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Cobalt chloride (CoCl2)	7646-79-9	Х	ACTIVE	Х	-	Х	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 Regulation (EC	ı
-		Annex XIV - Substances	Annex XVII - Restrictions	1907/2006) article 59 -	ı

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		Subject to Authorization	on Certain Dangerous Substances	Candidate List of Substances of Very High Concern (SVHC)
Cobalt chloride (CoCl2)	7646-79-9	-	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - 231-589-4 - Carcinogenic, Article 57a;Toxic for reproduction, Article 57c

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

REACH links

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

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -
		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements
Cobalt chloride (CoCl2)	7646-79-9	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 94/33/EC on the protection of young people at work

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

Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

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		
Cobalt chloride (CoCl2)	WGK3			

Component	France - INRS (Tables of occupational diseases)	
Cobalt chloride (CoCl2)	Tableaux des maladies professionnelles (TMP) - RG 65.RG 70	

Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

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

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed

H332 - Harmful if inhaled

H317 - May cause an allergic skin reaction

H318 - Causes serious eye damage

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

H350 - May cause cancer

H341 - Suspected of causing genetic defects

H350i - May cause cancer by inhalation

H360F - May damage fertility

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

Legend

CAS - Chemical Abstracts Service

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

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

EINECS/ELINCS - European Inventory of Existing Commercial Chemical 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 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 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

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.

Chemical incident response training.

Prepared By Health, Safety and Environmental Department

Creation Date 10-Mar-2010 **Revision Date** 26-Jan-2024

Revision Summary New emergency telephone response service provider.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2,

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Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

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