

Creation Date 13-Nov-2009

Revision Date 22-Dec-2020

Revision Number 10

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

1.1. Product identifier

Product Description: Cat No. : Synonyms CAS-No Molecular Formula	<u>Cobalt(II) chloride hexahydrate</u> 423570000; 423570050; 423571000; 423575000 Cobalt muriate hexahydrate; Cobaltous chloride hexahydrate 7791-13-1 Cl2 Co . 6 H2 O
1.2. Relevant identified uses of the	substance or mixture and uses advised against
Recommended Use Uses advised against	Laboratory chemicals. No Information available
1.3. Details of the supplier of the sa	fety data sheet
Company	UK entity/business name Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom EU entity/business name Acros Organics BVBA Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium
E-mail address	begel.sdsdesk@thermofisher.com
1.4. Emergency telephone number	For information US call: 001-800-ACROS-01 / 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 - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Acute oral toxicity

ACR42357

Category 4 (H302)

Cobalt(II) chloride hexahydrate

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Acute Inhalation Toxicity - Dusts and Mists **Respiratory Sensitization** Skin Sensitization Germ Cell Mutagenicity Carcinogenicity Reproductive Toxicity **Environmental hazards**

Acute aquatic toxicity Chronic aquatic toxicity Category 4 (H332) Category 1 (H334) Category 1 (H317) Category 2 (H341) Category 1B (H350i) Category 1B (H360F)

Category 1 (H400) Category 1 (H410)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

H317 - May cause an allergic skin reaction

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

H341 - Suspected of causing genetic defects

H350i - May cause cancer by inhalation

H360F - May damage fertility

H410 - Very toxic to aquatic life with long lasting effects

H302 + H332 - Harmful if swallowed or if inhaled

Precautionary Statements

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting P312 - Call a POISON CENTER or doctor/physician if you feel unwell P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

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

Additional EU labelling

Restricted to professional users

2.3. Other hazards

Toxic to terrestrial vertebrates

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

	Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No
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Cobalt(II) chloride hexahydrate

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				1272/2008
Cobalt(II) chloride hexahydrate	7791-13-1		>95	Acute Tox. 4 (H302)
				Acute Tox. 4 (H332)
				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)
Cobalt(II) chloride	7646-79-9	EEC No. 231-589-4	-	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(II) chloride	Carc. 1B :: C>=0.01%	10	-

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 not breathing, give artificial respiration. 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. 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

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

Cobalt(II) chloride hexahydrate

Notes to Physician

May cause sensitization of susceptible persons. Use of epinephrine may be indicated.

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

No information available.

5.2. Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Cobalt oxides, 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. Avoid dust formation. Ensure adequate ventilation. 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. Should not be released into the environment.

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. Avoid dust formation. Do not get in eyes, on skin, or on clothing. 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

Cobalt(II) chloride hexahydrate

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.

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

Class 6.1D

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, Third edition. Published 2018.

Component	The United Kingdom	European Union	Ireland
Cobalt(II) chloride hexahydrate	STEL: 0.3 mg/m ³ 15 min		
	TWA: 0.1 mg/m ³ 8 hr		
	Resp. Sens.		
Cobalt(II) chloride	Capable of causing cancer		
	and/or heritable genetic		
	damage		
	TWA: 0.1 mg/m ³ (As Co)		
	STEL: 0.3 mg/m ³ (As Co)		

Biological limit values

List source(s):

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

MDHS30/2 Cobalt and cobalt compounds in air Laboratory method using flame atomic absorption spectrometry

Derived No Effect Level (DNEL) No information available

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal				
Inhalation				

Predicted No Effect Concentration No information available. (PNEC)

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. 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	÷
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onal protective eq ye Protection		(European standard	I - EN 166)	
Hand Protection	Protectiv	ve gloves		
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness	EU standard EN 374	Glove comments (minimum requirement)

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
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	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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Solid Crystalline	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Reddish violet Odorless No data available 86 °C / 186.8 °F No data available No information available Not applicable No information available No data available	Solid
Flash Point Autoignition Temperature Decomposition Temperature pH Viscosity Water Solubility	No information available No data available 400 °C 4.6 Not applicable 970 g/L (20°C)	Method - No information available 50 g/l aq.sol Solid

Cobalt(II) c	hloride	hexahydrate	
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Solubility in other solvents	No information available	No information available		
Partition Coefficient (n-octanol/w	vater)			
Component	log Pow			
Cobalt(II) chloride	0.85			
Vapor Pressure	negligible			
Density / Specific Gravity	No data available			
Bulk Density	1.92 g/cm3			
Vapor Density	Not applicable	Solid		
Particle characteristics	No data available			
9.2. Other information				
Molecular Formula	Cl2 Co . 6 H2 O			
Molecular Weight	237.93			
Evaporation Rate	Not applicable - Solid			
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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 reaction	ons
Hazardous Polymerization Hazardous Reactions	No information available. None under normal processing.
10.4. Conditions to avoid	Avoid dust formation. Incompatible products. Exposure to moisture. Excess heat.
10.5. Incompatible materials	Strong oxidizing agents. Metals.

10.6. Hazardous decomposition products

Cobalt oxides. Hydrogen chloride gas.

SECTION	11.	TOXICOL	OGICAL	INFORMAT	ION
		IONICOL	.UUIUAL		IUIN

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

Product Information

(a) acute toxicity;	
Oral	Category 4
Dermal	Based on available data, the classification criteria are not met
Inhalation	Category 4

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cobalt(II) chloride hexahydrate	766 mg/kg(Rat)	-	-
Cobalt(II) chloride	586 mg/kg (Rat)	-	-

(b) skin corrosion/irritation;

No data available

(c) serious eye damage/irritation;	No data available
(d) respiratory or skin sensitization Respiratory Skin	; Category 1 Category 1 May cause sensitization by skin contact
(e) germ cell mutagenicity;	Category 2 Mutagenic effects have occurred in humans; Possible risk of irreversible effects
(f) carcinogenicity;	Category 1B The table below indicates whether each agency has listed any ingredient as a carcinogen

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

(g) reproductive toxicity; Reproductive Effects	Category 1B Experiments have shown reproductive toxicity effects on laboratory animals. May impair fertility.
Developmental Effects Teratogenicity	Developmental effects have occurred in experimental animals. Teratogenic effects have occurred in experimental animals.
(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	No data available
Target Organs	No information available.
(j) aspiration hazard;	Not applicable Solid
Other Adverse Effects	Tumorigenic effects have been reported in experimental animals.
Symptoms / effects,both acute and delayed	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	

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Endocrine Disrupting Properties
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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. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

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

Cobalt(II) chloride hexahydrate

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mg/L 96h

Component	Microtox	M-Factor
Cobalt(II) chloride hexahydrate	= 16 mg/L EC50 Photobacterium phosphoreum 15	
	min as Co++	
	= 160 mg/L EC50 Photobacterium phosphoreum 5	
	min as Co++	
	= 2.8 mg/L EC50 Photobacterium phosphoreum 30	
	min as Co++	
Cobalt(II) chloride		10

12.2. Persistence and degradability Persistence Degradability Degradation in sewage treatment plant 12.3. Bioaccumulative potential	pre-treatment is necessary based on information available, May persist. Not relevant for inorganic substances.	nto the environment must be avoided. Special s to the environment or not degradable in waste
12.3. Dioaccumulative potentiar	may have some potential to bioaccumulate	
Component	log Pow	Bioconcentration factor (BCF)
Cobalt(II) chloride	0.85	No data available
<u>12.4. Mobility in soil</u>	The product is water soluble, and may sprea environment due to its water solubility. High	ad in water systems Will likely be mobile in the ly mobile in soils

12.5. Results of PBT and vPvB	No data available for assessment.

assessment 12.6. Endocrine disrupting properties Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors
<u>12.7. Other adverse effects</u> Persistent Organic Pollutant Ozone Depletion Potential	This product does not contain any known or suspected substance 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.

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> 14.4. Packing group	UN3077 Environmentally hazardous substances, solid, n.o.s Cobalt (II) chloride 9 III
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>	UN3077 Environmentally hazardous substances, solid, n.o.s Cobalt (II) chloride 9 III
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>	UN3077 Environmentally hazardous substances, solid, n.o.s Cobalt (II) chloride 9 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

Cobalt(II) chloride hexahydrate

X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (ECL).

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Cobalt(II) chloride hexahydrate	-	-		-	-	-	Х	-	Х	Х	-
Cobalt(II) chloride	231-589-4	-		X	X	-	X	X	X	Х	KE-0609 5

Component	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)
Cobalt(II) chloride		Use restricted. See item 28. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details) Use restricted. See item 30. (see http://eur-lex.europa.eu/LexUriServ/L exUriServ.do?uri=CELEX:32006R190 7:EN:NOT for restriction details)	

Cobalt(II) chloride hexahydrate

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

National Regulations

WGK Classification

See table for values

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Cobalt(II) chloride	WGK3	

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

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

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

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

H302 - Harmful if swallowed

H332 - Harmful if inhaled

H317 - May cause an allergic skin reaction

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) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemica 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	
 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	ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

Ships

ATE - Acute Toxicity Estimate

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code **OFCD** - Organization for Economic Co-operation and Development

OECD - Organisation for Economic Co-operation and Development

MARPOL - International Convention for the Prevention of Pollution from

Cobalt(II) chloride hexahydrate

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 BCF - Bioconcentration factor
 VOC (volatile organic compound)

 Key literature references and sources for data
 https://echa.europa.eu/information-on-chemicals

 Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice Chemical incident response training.

Creation Date Revision Date Revision Summary 13-Nov-2009 22-Dec-2020 Update to CLP Format.

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

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