

# Safety data sheet Safety data sheet

acc. to Regulation (EC) No. 1907/2006 (REACH)



Perovskit PbCsX3 QD ROTI®nanoMETIC  $\lambda$  max. 530  $\pm$ 15 nm

article number: 253H  
Version: 1.0 en

date of compilation: 2023-10-31

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Identification of the substance	Perovskit PbCsX3 QD ROTI®nanoMETIC $\lambda$ max. 530 $\pm$ 15 nm
Article number	253H
Form	Nanoform

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

Relevant identified uses:	Laboratory and analytical use Laboratory chemical
Uses advised against:	Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household). Food, drink and animal feeding-stuffs.

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

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:**+49 (0) 721 - 56 06 0

**Telefax:** +49 (0) 721 - 56 06 149

**e-mail:** sicherheit@carlroth.de

**Website:** www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

**e-mail (competent person):** sicherheit@carlroth.de

### 1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.10	Acute toxicity (oral)	4	Acute Tox. 4	H302
3.1I	Acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.6	Carcinogenicity	2	Carc. 2	H351
3.7	Reproductive toxicity	1A	Repr. 1A	H360Df

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Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.9	Specific target organ toxicity - repeated exposure	2	STOT RE 2	H373
4.1A	Hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400
4.1C	Hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

For full text of abbreviations: see SECTION 16

## The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure. Spillage and fire water can cause pollution of watercourses.

## 2.2 Label elements

### Labelling

#### Signal word

**Danger**

#### Pictograms

GHS07, GHS08,  
GHS09



#### Hazard statements

H302+H332 Harmful if swallowed or if inhaled  
H351 Suspected of causing cancer  
H360Df May damage the unborn child. Suspected of damaging fertility  
H373 May cause damage to organs (haematopoietic system, kidney, central nervous system) through prolonged or repeated exposure  
H410 Very toxic to aquatic life with long lasting effects

#### Precautionary statements

##### Precautionary statements - prevention

P260 Do not breathe dust  
P273 Avoid release to the environment  
P280 Wear protective gloves/protective clothing/eye protection/face protection

##### Precautionary statements - response

P308+P313 IF exposed or concerned: Get medical advice/attention

##### Precautionary statements - disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations

For professional users only

**Hazardous ingredients for labelling:**

Lead(II) chloride

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## 2.3 Other hazards

### Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of  $\geq 0,1\%$ .

### Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0,1\%$ .

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

not relevant (mixture)

Form

Nanoform

### 3.2 Mixtures

#### Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Lead(II) chloride	CAS No 7758-95-4  EC No 231-845-5  Index No 082-001-00-6	< 100	Acute Tox. 4 / H302 Acute Tox. 4 / H332 Carc. 2 / H351 Repr. 1A / H360Df STOT RE 1 / H372 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410		1 A GHS-HC IOELV

#### Notes

- 1: The concentration stated or, in the absence of such concentrations, the generic concentrations set out in this Regulation are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.
- A: Without prejudice to Article 17(2), the name of the substance must appear on the label in the form of one of the designations given in Part 3. In Part 3, use is sometimes made of a general description such as '... compounds' or '... salts'. In this case, the supplier is required to state on the label the correct name, due account being taken of section 1.1.1.4.
- GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)
- IOELV: Substance with a community indicative occupational exposure limit value

Name of substance	Identifier	Specific Conc. Limits	M-Factors	ATE	Exposure route
Lead(II) chloride	CAS No 7758-95-4  EC No 231-845-5	Repr. 1A; H360D: C $\geq 0,3\%$ Repr. 2; H361f: C $\geq 2,5\%$ STOT RE 2; H373: C $\geq 0,5\%$	-	500 mg/kg 1,5 mg/l/4h	oral inhalation: dust/ mist

For full text of abbreviations: see SECTION 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

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## Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

## Following skin contact

Rinse skin with water/shower.

## Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

## Following ingestion

Rinse mouth with water (only if the person is conscious). In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

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

Vomiting, Nausea, Vomiting, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness

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

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!  
water, foam, dry extinguishing powder, ABC-powder

#### Unsuitable extinguishing media

water jet

### 5.2 Special hazards arising from the substance or mixture

Non-combustible.

### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures



#### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

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## 6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

## 6.3 Methods and material for containment and cleaning up

### Advice on how to contain a spill

Covering of drains. Take up mechanically.

### Advice on how to clean up a spill

Take up mechanically. Control of dust.

### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

## 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Avoid exposure. Avoid dust formation.

### Measures to prevent fire as well as aerosol and dust generation

Removal of dust deposits.

### Measures to protect the environment

Avoid release to the environment.

### Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place. Keep container tightly closed.

### Incompatible substances or mixtures

Observe hints for combined storage.

### Consideration of other advice:

### Ventilation requirements

Keep any substance that emits harmful vapours or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

### Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

### 7.3 Specific end use(s)

No information available.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [mg/m <sup>3</sup> ]	STEL [mg/m <sup>3</sup> ]	Ceiling-C [mg/m <sup>3</sup> ]	Notation	Source
EU	lead compounds		IOELV	0,15				2022/431/EU
GB	lead compounds		OEL-NIR	0,15			Pb	CLWR-NIR
GB	lead compounds		OEL	0,15			Pb	CLWR
GB	dust		WEL	10			i	EH40/2005
GB	dust		WEL	4			r	EH40/2005

#### Notation

Ceiling-C	Ceiling value is a limit value above which exposure should not occur
i	Inhalable fraction
Pb	Calculated as Pb (lead)
r	Respirable fraction
STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

#### Biological limit values

Country	Name of agent	CAS No	Parameter	Notation	Identifier	Value	Material	Source
GB	lead compounds		lead	Pb-bio-2, Pb-med-2, wmn < 45y	AL_NIR	250 $\mu$ g/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-2, wmn < 45y	AL	250 $\mu$ g/l	whole blood	CLWR
GB	lead compounds		lead	Pb-bio-2, Pb-med-3, wmn > 45y, men	AL_NIR	400 $\mu$ g/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-3, wmn > 45y, men	AL	400 $\mu$ g/l	whole blood	CLWR

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Country	Name of agent	CAS No	Parameter	Notation	Identifier	Value	Material	Source
GB	lead compounds		lead	Pb-bio-2, Pb-med-4, young	AL_NIR	500 $\mu$ g/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-4, young	AL	500 $\mu$ g/l	whole blood	CLWR

### Notation

Pb-bio-2	Biological monitoring: (a) in respect of an employee other than a young person or a woman of reproductive capacity, at least every 6 months, but where the results of the measurements for individuals or for groups of workers have shown on the previous two consecutive occasions on which monitoring was carried out a lead in air exposure greater than 0.075 mg/m <sup>3</sup> but less than 0.100 mg/m <sup>3</sup> and where the blood-lead concentration of any individual employee is less than 30 $\mu$ g/dl, the frequency of monitoring may be reduced to once a year; or (b) in respect of any young person or a woman of reproductive capacity, at such intervals as the relevant doctor shall specify, being not greater than 3 months
Pb-med-2	Medical surveillance: in respect of a woman of reproductive capacity, 20 g/dl (blood-lead concentration) or 20 g Pb/g creatinine (urinary lead concentration)
Pb-med-3	Medical surveillance: in respect of any other employee, 35 $\mu$ g/dl (blood-lead concentration) or 40 $\mu$ g Pb/g creatinine (urinary lead concentration) suspension level: in respect of a woman of reproductive capacity, 60 $\mu$ g/dl (blood-lead concentration) or 110 $\mu$ g Pb/g creatinine (urinary lead concentration)
Pb-med-4	Medical surveillance: in respect of any other employee, 35 $\mu$ g/dl (blood-lead concentration) or 40 $\mu$ g Pb/g creatinine (urinary lead concentration) suspension level: in respect of a young person, 50 $\mu$ g/dl (blood-lead concentration) or 110 $\mu$ g Pb/g creatinine (urinary lead concentration)
wmn<45y	Women of reproductive capacity (women < 45 years)
wmn>45y, men	Women of non-reproductive capacity, men (women > 45 years)
young	Adolescents (young person < 18 years)

## 8.2 Exposure controls

### Individual protection measures (personal protective equipment)

#### Eye/face protection



Use safety goggle with side protection.

#### Skin protection



#### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

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- **type of material**

NBR (Nitrile rubber)

- **material thickness**

>0,11 mm

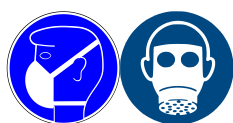
- **breakthrough times of the glove material**

>480 minutes (permeation: level 6)

- **other protection measures**

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White).

### Environmental exposure controls

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	solid
Form	nanoparticle
Colour	greenish yellow
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not determined
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not applicable
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	not applicable
Kinematic viscosity	not relevant
<u>Solubility(ies)</u>	
Water solubility	(practically insoluble)
<u>Partition coefficient</u>	
Partition coefficient n-octanol/water (log value):	not relevant (inorganic)



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Vapour pressure	not determined
<u>Density and/or relative density</u>	
Density	not determined
Relative vapour density	information on this property is not available
<u>Particle characteristics</u>	
Particle size	~10 nm
<u>Other safety parameters</u>	
Oxidising properties	none

## 9.2 Other information

Information with regard to physical hazard classes:	hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics:	There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

**Violent reaction with:** strong oxidiser, Alkali metals, Alkaline earth metal, Strong acid

### 10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

### 10.5 Incompatible materials

There is no additional information.

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Test data are not available for the complete mixture.

#### Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

#### Classification acc. to GHS

##### Acute toxicity

Harmful if swallowed. Harmful if inhaled.

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GHS of the United Nations, annex 4. May be harmful in contact with skin.

## Acute toxicity estimate (ATE) of components

Name of substance	CAS No	Exposure route	ATE
Lead(II) chloride	7758-95-4	oral	500 mg/kg
Lead(II) chloride	7758-95-4	inhalation: dust/mist	1,5 mg/l/4h

## Acute toxicity of components

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Lead(II) chloride	7758-95-4	oral	LD50	>2.000 mg/kg	rat
Lead(II) chloride	7758-95-4	dermal	LD50	>2.000 mg/kg	rat

### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

### Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

### Carcinogenicity

Suspected of causing cancer.

### Reproductive toxicity

May damage the unborn child. Suspected of damaging fertility.

### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

### Specific target organ toxicity - repeated exposure

May cause damage to organs (haematopoietic system, kidney, central nervous system) through prolonged or repeated exposure.

Hazard category	Target organ	Exposure route
2	haematopoietic system	if exposed
2	kidney	if exposed
2	central nervous system	if exposed

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### Symptoms related to the physical, chemical and toxicological characteristics

#### • If swallowed

diarrhoea, vomiting, abdominal pain, nausea

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- **If in eyes**

Data are not available.

- **If inhaled**

varying degrees of pulmonary injury

- **If on skin**

risk of absorption via the skin

- **Other information**

Irreversible damage to internal organs, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness

## 11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0,1\%$ .

## 11.3 Information on other hazards

There is no additional information.

## SECTION 12: Ecological information

### 12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Lead(II) chloride	7758-95-4	EC50	0,45 mg/l	daphnia magna	48 h
Lead(II) chloride	7758-95-4	LC50	1.170 $\mu$ g/l	fish	96 h
Lead(II) chloride	7758-95-4	ErC50	123 $\mu$ g/l	algae	72 h

### 12.2 Persistence and degradability

Data are not available.

### 12.3 Bioaccumulative potential

Data are not available.

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance in a concentration of  $\geq 0,1\%$ .

### 12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) in a concentration of  $\geq 0,1\%$ .

### 12.7 Other adverse effects

Data are not available.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

#### Properties of waste which render it hazardous

- HP 5** specific target organ toxicity (STOT)/aspiration toxicity
- HP 6** acute toxicity
- HP 7** carcinogenic
- HP 10** toxic for reproduction
- HP 14** ecotoxic

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

## SECTION 14: Transport information

### 14.1 UN number or ID number

ADRRID	UN 2291
IMDG-Code	UN 2291
ICAO-TI	UN 2291

### 14.2 UN proper shipping name

ADRRID	LEAD COMPOUND, SOLUBLE, N.O.S.
IMDG-Code	LEAD COMPOUND, SOLUBLE, N.O.S.
ICAO-TI	Lead compound, soluble, n.o.s.
Technical name (hazardous ingredients)	Lead(II) chloride

### 14.3 Transport hazard class(es)

ADRRID	6.1
IMDG-Code	6.1
ICAO-TI	6.1

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## 14.4 Packing group

ADRRID	III
IMDG-Code	III
ICAO-TI	III

## 14.5 Environmental hazards

hazardous to the aquatic environment

Environmentally hazardous substance (aquatic environment): Lead(II) chloride

## 14.6 Special precautions for user



Provisions for dangerous goods (ADR) should be complied within the premises.

## 14.7 Maritime transport in bulk according to IMO instruments



The cargo is not intended to be carried in bulk.

## 14.8 Information for each of the UN Model Regulations

### Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) Additional information

Proper shipping name	LEAD COMPOUND, SOLUBLE, N.O.S.
Particulars in the transport document	UN2291, LEAD COMPOUND, SOLUBLE, N.O.S., (contains: Lead(II) chloride), 6.1, III, (E), environmentally hazardous
Classification code	T5
Danger label(s)	6.1, "Fish and tree"
 	
Environmental hazards	yes (hazardous to the aquatic environment)
Special provisions (SP)	199, 274, 535, 802(ADN)
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	60
<b>Emergency Action Code</b>	<b>2Z</b>

### Regulations concerning the International Carriage of Dangerous Goods by Rail (RID) Additional information

<b>Classification code</b>	T5
<b>Danger label(s)</b>	6.1 Fish and tree
 	
<b>Environmental hazards</b>	Yes Hazardous to water

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**Special provisions (SP)** 199, 274, 535, 802(ADN)

**Excepted quantities (EQ)** E1

**Limited quantities (LQ)** 5 kg

**Transport category (TC)** 2

**Hazard identification No** 60

### International Maritime Dangerous Goods Code (IMDG) - Additional information

Proper shipping name LEAD COMPOUND, SOLUBLE, N.O.S.

Particulars in the shipper's declaration UN2291, LEAD COMPOUND, SOLUBLE, N.O.S., (contains: Lead(II) chloride), 6.1, III, MARINE POLLUTANT

Marine pollutant yes (P) (hazardous to the aquatic environment), (Lead(II) chloride)

Danger label(s) 6.1, "Fish and tree"



Special provisions (SP) 199, 274

Excepted quantities (EQ) E1

Limited quantities (LQ) 5 kg

EmS F-A, S-A

Stowage category A

**Segregation group** 7 - Heavy metals and their salts  
9 - Lead and its compounds

### International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Proper shipping name Lead compound, soluble, n.o.s.

Particulars in the shipper's declaration UN2291, Lead compound, soluble, n.o.s., (contains: Lead(II) chloride), 6.1, III

Environmental hazards YES (hazardous to the aquatic environment)

Danger label(s) 6.1



Special provisions (SP) A92

Excepted quantities (EQ) E1

Limited quantities (LQ) 10 kg

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## SECTION 15: Regulatory information

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

#### Relevant provisions of the European Union (EU)

##### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
E1	environmental hazards (hazardous to the aquatic environment, cat. 1)	100                      200	56)

##### Notation

56) Hazardous to the Aquatic Environment in category Acute 1 or Chronic 1

##### Deco-Paint Directive

VOC content	0 %
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##### Industrial Emissions Directive (IED)

VOC content	0 %
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##### Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

##### Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

##### Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Lead(II) chloride	lead compounds		b)	
Lead(II) chloride	lead compounds	7439-92-1	c)	
Lead(II) chloride	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		a)	
Lead(II) chloride	Metals and their compounds		a)	

##### Legend

- a) Indicative list of the main pollutants
- b) List of priority substances in the field of water policy
- c) Environmental Quality Standards for Priority Substances and certain other pollutants

##### Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

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## Regulation on drug precursors

none of the ingredients are listed

## Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

## Regulation concerning the export and import of hazardous chemicals (PIC)

chemicals subject to the international prior informed consent (PIC) procedure (the 'PIC procedure').

Name of substance	Name acc. to inventory	CAS No	Wt%	Category / subcategory	Use limitation
Lead(II) chloride	lead compounds		100	i(2)	sr

### Legend

i(2) Sub-category: i(2) - industrial chemical for public use  
sr Use limitation: severe restriction (for the sub-category or sub-categories concerned) according to Union legislation

## Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

## National regulations(GB)

## List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

none of the ingredients are listed

## Restrictions according to GB REACH, Annex 17

Dangerous substances with restrictions (GB REACH, Annex 17)			
Name of substance	Name acc. to inventory	CAS No	No
Lead(II) chloride	toxic for reproduction		30
Lead(II) chloride	Lead compounds		63
Lead(II) chloride	Lead compounds		72

## Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

## National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed



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Country	Inventory	Status
PH	PICCS	all ingredients are listed
TW	TCSI	all ingredients are listed
VN	NCI	all ingredients are listed
US	TSCA	all ingredients are listed (ACTIVE)

### Legend

AIIC	Australian Inventory of Industrial Chemicals
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2022/431/EU	Directive (EU) 2022/431 of the European Parliament and of the Council of 9 March 2022 amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
Acute Tox.	Acute toxicity
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
CLWR	Control of Lead at Work Regulations
CLWR-NIR	Control of Lead at Work Regulations (Northern Ireland)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )

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Abbr.	Descriptions of used abbreviations
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	$\equiv$ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
NLP	No-Longer Polymer
OEL	Workplace exposure limit
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Repr.	Reproductive toxicity
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

### Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

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## Classification procedure

Physical and chemical properties. The classification is based on tested mixture.

Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

## List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H372	Causes damage to organs (haematopoietic system, kidney, central nervous system) through prolonged or repeated exposure.
H373	May cause damage to organs (haematopoietic system, kidney, central nervous system) through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

## Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.