

# Safety data sheet Safety data sheet

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



**Lead(IV) oxide ≥97 %, p.a.**

article number: **4479**  
Version: **3.0 en**  
Replaces version of: 2022-01-03  
Version: (2)

date of compilation: 2019-10-15  
Revision: 2024-03-02

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

### 1.1 Product identifier

Identification of the substance	<b>Lead(IV) oxide ≥97 %, p.a.</b>
Article number	4479
Index No (GB CLP)	082-001-00-6
EC number	215-174-5
CAS number	1309-60-0

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

Relevant identified uses:	Laboratory chemical Laboratory and analytical use
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](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

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

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

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## Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
2.14	Oxidising solid	3	Ox. Sol. 3	H272
3.10	Acute toxicity (oral)	4	Acute Tox. 4	H302
3.11	Acute toxicity (inhal.)	4	Acute Tox. 4	H332
3.7	Reproductive toxicity	1A	Repr. 1A	H360Df
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

GHS03, GHS07,  
GHS08, GHS09



#### Hazard statements

H272	May intensify fire; oxidiser
H302+H332	Harmful if swallowed or if inhaled
H360Df	May damage the unborn child. Suspected of damaging fertility
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects

#### Precautionary statements

##### Precautionary statements - prevention

P220	Keep/store away from clothing/combustible materials
P273	Avoid release to the environment
P280	Wear protective gloves

##### Precautionary statements - response

P308+P313	IF exposed or concerned: Get medical advice/attention
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For professional users only

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## 2.3 Other hazards

### Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

### Endocrine disrupting properties

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

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	Lead(IV) oxide
Molecular formula	PbO <sub>2</sub>
Molar mass	239,2 g/mol
CAS No	1309-60-0
EC No	215-174-5
Index No (GB CLP)	082-001-00-6

#### Substance, Specific Conc. Limits, M-factors, ATE

Specific Conc. Limits	M-Factors	ATE	Exposure route
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

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### 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).

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

Headaches and dizziness may occur, Agitation, Nausea, Vomiting, Irreversible damage to internal organs, Poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, Cardiac arrhythmias

## 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

Oxidising property. 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.

### 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.

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## 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. Keep away from combustible material.

#### 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. Keep/store away from clothing/combustible materials. Take any precaution to avoid mixing with combustibles.

#### 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.

## 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

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### Notation

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 µg/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-2, wmn < 45y	AL	250 µg/l	whole blood	CLWR
GB	lead compounds		lead	Pb-bio-2, Pb-med-3, wmn > 45y, men	AL_NIR	400 µg/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-3, wmn > 45y, men	AL	400 µg/l	whole blood	CLWR
GB	lead compounds		lead	Pb-bio-2, Pb-med-4, young	AL_NIR	500 µg/l	whole blood	CLWR-NIR
GB	lead compounds		lead	Pb-bio-2, Pb-med-4, young	AL	500 µg/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 µg/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)

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### Notation

Pb-med-3	Medical surveillance: in respect of any other employee, 35 $\mu\text{g}/\text{dl}$ (blood-lead concentration) or 40 $\mu\text{g}$ Pb/g creatinine (urinary lead concentration) suspension level: in respect of a woman of reproductive capacity, 60 $\mu\text{g}/\text{dl}$ (blood-lead concentration) or 110 $\mu\text{g}$ Pb/g creatinine (urinary lead concentration)
Pb-med-4	Medical surveillance: in respect of any other employee, 35 $\mu\text{g}/\text{dl}$ (blood-lead concentration) or 40 $\mu\text{g}$ Pb/g creatinine (urinary lead concentration) suspension level: in respect of a young person, 50 $\mu\text{g}/\text{dl}$ (blood-lead concentration) or 110 $\mu\text{g}$ 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.

#### • type of material

NBR (Nitrile rubber)

#### • material thickness

>0,11 mm

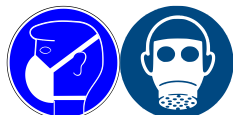
#### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

#### • other protection measures

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

#### Respiratory protection



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Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P2 (filters at least 94 % 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
Colour	dark brown
Odour	odourless
Melting point/freezing point	>290 °C at 1 atm (ECHA)
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	<300 °C at 1 atm (ECHA)
pH (value)	6 – 7 (in aqueous solution: 100 g/l, 20 °C)
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)
Vapour pressure	not determined
<u>Density and/or relative density</u>	
Density	9,4 g/cm <sup>3</sup>
Relative vapour density	Information on this property is not available.
Particle characteristics	No data available.
<u>Other safety parameters</u>	
Oxidising properties	oxidiser

### **9.2 Other information**



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Information with regard to physical hazard classes:

There is no additional information.

Other safety characteristics:

There is no additional information.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

It's a reactive substance. Oxidising property.

### 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

**Dangerous/dangerous reactions with:** strong oxidiser, Alkali metals, Combustible materials, Metal powder, Nitro compound, Phosphorus, Reducing agents, Sulphur, Sulphur oxides, Sulphuric acid, Hydrogen sulphide (H<sub>2</sub>S), Strong acid, Hydrogen peroxide

### 10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above:  $< 300$  °C at 1 atm.

### 10.5 Incompatible materials

combustible materials

### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Classification acc. to GHS**

#### Acute toxicity

Harmful if swallowed. Harmful if inhaled.

#### 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

Shall not be classified as carcinogenic.

#### 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).

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## **Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

## **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, constipation, irreversible damage to internal organs, poisoning effect on central nervous system can cause convulsions, laboured breathing and loss of consciousness, gastrointestinal complaints

### **• If in eyes**

Data are not available.

### **• If inhaled**

cough, Dyspnoea

### **• If on skin**

Data are not available.

### **• Other information**

Other adverse effects: Brain, Cardiovascular system, Headache, Spasms, Vertigo, Agitation

## **11.2 Endocrine disrupting properties**

Does not contain an endocrine disruptor (ED) at 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.

### **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**

Data are not available.

### **12.6 Endocrine disrupting properties**

Does not contain an endocrine disruptor (ED) at 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 2** oxidising  
**HP 5** specific target organ toxicity (STOT)/aspiration toxicity  
**HP 6** acute toxicity  
**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 1872
IMDG-Code	UN 1872
ICAO-TI	UN 1872

### 14.2 UN proper shipping name

ADRRID	LEAD DIOXIDE
IMDG-Code	LEAD DIOXIDE
ICAO-TI	Lead dioxide

### 14.3 Transport hazard class(es)

ADRRID	5.1
IMDG-Code	5.1
ICAO-TI	5.1

### 14.4 Packing group

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ADRRID	III
IMDG-Code	III
ICAO-TI	III
<b>14.5 Environmental hazards</b>	hazardous to the aquatic environment

## 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 DIOXIDE
Particulars in the transport document	UN1872, LEAD DIOXIDE, 5.1, III, (E), environmentally hazardous
Classification code	O2
Danger label(s)	5.1, "Fish and tree"
	
Environmental hazards	YES (hazardous to the aquatic environment)
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
Transport category (TC)	3
Tunnel restriction code (TRC)	E
Hazard identification No	50
<b>Emergency Action Code</b>	1Z

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

Classification code	O2
Danger label(s)	5.1, "Fish and tree"
	
Environmental hazards	Yes Hazardous to water
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
Transport category (TC)	3
Hazard identification No	50

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

Proper shipping name	LEAD DIOXIDE
Particulars in the shipper's declaration	UN1872, LEAD DIOXIDE, 5.1, III, MARINE POLLUTANT
Marine pollutant	yes (hazardous to the aquatic environment)
Danger label(s)	5.1, "Fish and tree"
 	
Special provisions (SP)	-
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-A, S-Q
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 dioxide
Particulars in the shipper's declaration	UN1872, Lead dioxide, 5.1, III
Environmental hazards	yes (hazardous to the aquatic environment)
Danger label(s)	5.1
	
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 kg

## 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
P8	oxidising liquids and solids	50                      200	55)

##### Notation

55) Oxidising liquids, category 1, 2 or 3, or oxidising solids, category 1, 2 or 3

##### 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)

not listed

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

not listed

## Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Lead(IV) oxide	lead compounds		b)	
Lead(IV) oxide	lead compounds	7439-92-1	c)	
Lead(IV) oxide	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(IV) oxide	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

not listed

## Regulation on drug precursors

not listed

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

not 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(IV) oxide	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)

not listed

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## National regulations(GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list  
not 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(IV) oxide	toxic for reproduction		30
Lead(IV) oxide	Lead compounds		63
Lead(IV) oxide	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	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed (ACTIVE)
VN	NCI	substance is listed

### 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

No Chemical Safety Assessment has been carried out for this substance.

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## SECTION 16: Other information

### Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.2	Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger		yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$ .	yes
14.3	ADR/RID/ADN: 5.1 (6.1)	ADRRID: 5.1	yes
14.8	Particulars in the transport document: UN1872, LEAD DIOXIDE, 5.1 (6.1), III, (E), environmentally hazardous	Particulars in the transport document: UN1872, LEAD DIOXIDE, 5.1, III, (E), environmentally hazardous	yes
14.8	Classification code: OT2	Classification code: O2	yes
14.8	Danger label(s): 5.1+6.1, "Fish and tree"	Danger label(s): 5.1, "Fish and tree"	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8	Special provisions (SP): 802(ADN)		yes
14.8	Hazard identification No: 56	Hazard identification No: 50	yes
14.8	Emergency Action Code: 1X	Emergency Action Code: 1Z	yes
14.8		Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)Additional information	yes
14.8		Classification code: O2	yes
14.8		Danger label(s): 5.1, "Fish and tree"	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Environmental hazards: Yes Hazardous to water	yes
14.8		Excepted quantities (EQ): E1	yes



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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8		Limited quantities (LQ): 5 kg	yes
14.8		Transport category (TC): 3	yes
14.8		Hazard identification No: 50	yes
15.1	Restrictions according to REACH, Annex XVII		yes
15.1		Dangerous substances with restrictions (REACH, Annex XVII): change in the listing (table)	yes
15.1	List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list: Not listed.		yes
15.1		Regulation concerning the export and import of hazardous chemicals (PIC): change in the listing (table)	yes
15.1		National regulations(GB)	yes
15.1		List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list: not listed	yes
15.1		Restrictions according to GB REACH, Annex 17	yes
15.1		Dangerous substances with restrictions (GB REACH, Annex 17): change in the listing (table)	yes
15.1		National inventories: change in the listing (table)	yes

## 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
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
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)
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
GB CLP	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
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
NLP	No-Longer Polymer
OEL	Workplace exposure limit
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
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
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).

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

Code	Text
H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H360Df	May damage the unborn child. Suspected of damaging fertility.

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article number: **4479**

Code	Text
H373	May cause damage to organs 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.