

## FLX-140 Zirconiumoxide

Version number: 2.0  
Replaces version of: 2018-07-03 (1)

Revision: 2020-02-03  
First version: 2018-07-03

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

#### 1.1 Product identifier

<b>Trade name</b>	<u>FLX-140 Zirconiumoxide</u>
<b>Registration number (REACH)</b>	Not relevant (mixture).
<b>CAS number</b>	not relevant (mixture)

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

<b>Relevant identified uses</b>	Laboratory and analytical use
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#### 1.3 Details of the supplier of the safety data sheet

FLUXANA® GmbH & Co. KG	Telephone: +49 (0) 2821 - 48011-10
Borschelstraße 3	Telefax: +49 (0) 2821 - 48011-99
D-47551 Bedburg-Hau	e-mail: <a href="mailto:info@fluxana.de">info@fluxana.de</a>
Germany	Website: <a href="http://www.fluxana.de">www.fluxana.de</a>

#### 1.4 Emergency telephone number

As above or nearest toxicological information centre.

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### **Classification according to Regulation (EC) No 1272/2008 (CLP)**

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

#### 2.2 Label elements

##### **Labelling according to Regulation (EC) No 1272/2008 (CLP)**

Not required.

#### 2.3 Other hazards

There is no additional information.

##### **Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not relevant (mixture).

### 3.2 Mixtures

#### Description of the mixture

Hazardous ingredients			
Name of substance	Identifier	Wt%	Classification acc. to GHS
zirconium dioxide	CAS No 1314-23-4  EC No 215-227-2  REACH Reg. No 01-2119486976-14-xxxx	88 – 96	
yttrium oxide	CAS No 1314-36-9  EC No 215-233-5	5 – < 10	
aluminium oxide	CAS No 1344-28-1  EC No 215-691-6  REACH Reg. No 01-2119529248-35-xxxx	< 1	

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

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

#### Following inhalation

Provide fresh air.

#### Following skin contact

Wash with plenty of soap and water.

#### Following eye contact

Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

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## Following ingestion

Rinse mouth. Do not induce vomiting.  
Get medical advice/attention if you feel unwell.

## Notes for the doctor

None.

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

These information are not available.

## 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

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

Hazardous decomposition products: Section 10.

### 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.  
Collect contaminated firefighting water separately.  
Fight fire with normal precautions from a reasonable distance.

#### Special protective equipment for firefighters

use suitable breathing apparatus

## SECTION 6: Accidental release measures

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

#### For non-emergency personnel

Ventilate affected area.  
Avoid contact with eyes.  
Do not breathe dust.  
Control of dust.  
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

#### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water.  
Retain contaminated washing water and dispose of it.

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## 6.3 Methods and material for containment and cleaning up

### Advice on how to contain a spill

Take up mechanically.

### Advice on how to clean up a spill

Take up mechanically.

### Other information relating to spills and releases

Place in appropriate containers for disposal.

Ventilate affected area.

## 6.4 Reference to other sections

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 contact with eyes.

Do not breathe dust.

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

Use local and general ventilation.

### Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

### Measures to protect the environment

Avoid release to the environment.

### Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Wash hands after use.

Preventive skin protection (barrier creams/ointments) is recommended.

Remove contaminated clothing and protective equipment before entering eating areas.

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

#### Flammability hazards

None.

#### Incompatible substances or mixtures

Incompatible materials: see section 10.

#### Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

#### Ventilation requirements

Provision of sufficient ventilation.

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## Packaging compatibilities

Keep only in original container.

## 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Notation	Source
GB	dust		WEL		10			i	EH40/2005
GB	dust		WEL		4			r	EH40/2005
GB	zirconium compounds		WEL		5		10	Zr	EH40/2005
GB	aluminium oxides	1344-28-1	WEL		10			i	EH40/2005
GB	aluminium oxides	1344-28-1	WEL		4			r	EH40/2005

#### Notation

i inhalable fraction

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)

Zr calculated as Zr (zirconium)

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
aluminium oxide	1344-28-1	DNEL	15.63 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
aluminium oxide	1344-28-1	DNEL	15.63 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects

Relevant PNECs of components of the mixture				
Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment
aluminium oxide	1344-28-1	PNEC	20 mg/l	sewage treatment plant (STP)

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## 8.2 Exposure controls

### Appropriate engineering controls

General ventilation.

### Individual protection measures (personal protective equipment)

#### Eye/face protection

Wear eye/face protection.

#### Hand protection

Protective gloves		
Material	Material thickness	Breakthrough times of the glove material
no information available	no information available	no information available

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

In the case of wanting to use the gloves again, clean them before taking off and air them well.

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.

#### Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Particulate filter device (EN 143).

#### Environmental exposure controls

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	solid
Form	powder
Colour	white
Odour	odourless
Odour threshold	these information are not available

#### Other safety parameters

pH (value)	these information are not available
Melting point/freezing point	these information are not available

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Initial boiling point and boiling range	these information are not available
Flash point	not applicable
Evaporation rate	these information are not available
Flammability (solid, gas)	non-combustible
Explosion limits of dust clouds	not determined
Vapour pressure	these information are not available
Density	1 – 1.5 g/cm <sup>3</sup> at 20 °C
Vapour density	these information are not available
Relative density	these information are not available
<b>Solubility(ies)</b>	
Water solubility	these information are not available
<b>Partition coefficient</b>	
n-octanol/water (log KOW)	these information are not available
Auto-ignition temperature	not relevant (Solid matter)
Relative self-ignition temperature for solids	these information are not available
Decomposition temperature	these information are not available
<b>Viscosity</b>	
Kinematic viscosity	not relevant (solid matter)
Dynamic viscosity	not relevant (solid matter)
Explosive properties	not explosive
Oxidising properties	shall not be classified as oxidising

## 9.2 Other information

None

## 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.

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## 10.3 Possibility of hazardous reactions

No known hazardous reactions.

## 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

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Classification procedure

If not otherwise specified the classification is based on:  
Ingredients of the mixture (additivity formula).

#### Classification according to GHS (1272/2008/EC, CLP)

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

#### Acute toxicity

Acute toxicity of components of the mixture						
Name of substance	CAS No	Exposure route	Endpoint	Value	Species	Method
zirconium dioxide	1314-23-4	oral	LD50	>5,000 mg/kg	rat	
zirconium dioxide	1314-23-4	inhalation: dust/mist	LC0	4.3 mg/l/4h	rat	
yttrium oxide	1314-36-9	oral	LD50	>5,000 mg/kg	rat	OECD Guideline 401
yttrium oxide	1314-36-9	inhalation: dust/mist	LC50	>5.09 mg/l/4h	rat	OECD Guideline 436
aluminium oxide	1344-28-1	oral	LD50	>10,000 mg/kg	rat	OECD Guideline 401
aluminium oxide	1344-28-1	inhalation: dust/mist	LC0	2.3 mg/l/4h	rat	OECD Guideline 403

#### Skin corrosion/irritation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.



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## **Serious eye damage/eye irritation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## **Respiratory or skin sensitisation**

### **Skin sensitisation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

### **Respiratory sensitisation**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## **Germ cell mutagenicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## **Carcinogenicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## **Reproductive toxicity**

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

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

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

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

Classification could not be established because:  
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

## **Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

## **SECTION 12: Ecological information**

### **12.1 Toxicity**

#### **Aquatic toxicity (acute)**

Test data are not available for the complete mixture.

#### **Aquatic toxicity (acute) of components of the mixture**

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Name of substance	CAS No	Endpoint	Value	Species	Method	Exposure time
zirconium dioxide	1314-23-4	LC50	>100 mg/l	zebra fish (Danio rerio)	OECD Guideline 203	96 h
zirconium dioxide	1314-23-4	EC50	>100 mg/l	daphnia magna	EU method C.2	48 h
yttrium oxide	1314-36-9	LL50	>100 mg/l	zebra fish (Danio rerio)	OECD Guideline 203	96 h
yttrium oxide	1314-36-9	LL50	>100 mg/l	daphnia magna	OECD Guideline 202	48 h
yttrium oxide	1314-36-9	EL50	>100 mg/l	algae		72 h

### Aquatic toxicity (chronic)

Test data are not available for the complete mixture.

### Aquatic toxicity (chronic) of components of the mixture

Aquatic toxicity (chronic) of components of the mixture							
Name of substance	CAS No	Endpoint	Value	Species	Method	Source	Exposure time
yttrium oxide	1314-36-9	NOELR	≥100 mg/l	algae (Sceletonema costatum)	OECD Guideline 203	ECHA	96 h

## 12.2 Persistence and degradability

### Biodegradation

Data are not available.

### Persistence

Data are not available.

## 12.3 Bioaccumulative potential

Test data are not available for the complete mixture.

## 12.4 Mobility in soil

Data are not available.

## 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

## 12.6 Other adverse effects

Data are not available.

### Remarks

Wassergefährdungsklasse, WGK (water hazard class): 1

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

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

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself.

#### Remarks

Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

- |      |  |   |
|------|--|---|
| 14.1 | <b>UN number</b>   | not subject to transport regulations                                  |
| 14.2 | <b>UN proper shipping name</b>   | -   |
| 14.3 | <b>Transport hazard class(es)</b>  | none  |
|      | <b>Class</b>   | -   |
| 14.4 | <b>Packing group</b>   | not assigned to a packing group                                       |
| 14.5 | <b>Environmental hazards</b>   | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 | <b>Special precautions for user</b>  |   |
|      |  | There is no additional information.                                   |
| 14.7 | <b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b>            |   |
|      |  | The cargo is not intended to be carried in bulk.                      |
| 14.8 | <b><u>Information for each of the UN Model Regulations</u></b>                       |   |
|      | <b>Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).</b> |   |
|      |  | Not subject to ADR, RID and ADN.                                      |
|      | <b>International Maritime Dangerous Goods Code (IMDG)</b>                            |   |
|      |  | Not subject to IMDG.  |
|      | <b>International Civil Aviation Organization (ICAO-IATA/DGR)</b>                     |   |
|      |  | Not subject to ICAO-IATA.   |

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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)

#### Restrictions according to REACH, Annex XVII

None of the ingredients are listed.

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

None of the ingredients are listed.

#### Seveso Directive

Not assigned.

#### Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

None of the ingredients are listed.

#### Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

#### Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

None of the ingredients are listed.

#### Regulation 98/2013/EU on the marketing and use of explosives precursors

None of the ingredients are listed.

#### Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)

None of the ingredients are listed.

#### Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)

None of the ingredients are listed.

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier. Chemical safety assessments for substances in this mixture were not carried out.

## SECTION 16: Other information

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

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<b>Indication of changes (revised safety data sheet)</b>		
<b>Section</b>	<b>Former entry (text/value)</b>	<b>Actual entry (text/value)</b>
1.3	<p>Details of the supplier of the safety data sheet:            FLUXANA® GmbH &amp; Co. KG            Borschelstr. 3            D-47551 Bedburg-Hau            Germany</p> <p>Telephone: ++49 (0) 2821 - 997 32-0            Telefax: ++49 (0) 2821 - 997 32-29            e-mail: Info@fluxana.de            Website: http://www.fluxana.de</p>	<p>Details of the supplier of the safety data sheet:            FLUXANA® GmbH &amp; Co. KG            Borschelstraße 3            D-47551 Bedburg-Hau            Germany</p> <p>Telephone: +49 (0) 2821 - 48011-10            Telefax: +49 (0) 2821 - 48011-99            e-mail: info@fluxana.de            Website: www.fluxana.de</p>
1.4	<p>Emergency telephone number:            As above or next toxicological information centre.</p>	<p>Emergency telephone number:            As above or nearest toxicological information centre.</p>
8.1		<p>Relevant DNELs of components of the mixture:            change in the listing (table)</p>
8.1		<p>Relevant PNECs of components of the mixture:            change in the listing (table)</p>
15.1	<p>Seveso Directive</p>	<p>Seveso Directive:            Not assigned.</p>
15.1		<p>2012/18/EU (Seveso III):            change in the listing (table)</p>

## Abbreviations and acronyms

<b>Abbreviations and acronyms</b>	
<b>Abbr.</b>	<b>Descriptions of used abbreviations</b>
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
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)
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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<b>Abbreviations and acronyms</b>	
<b>Abbr.</b>	<b>Descriptions of used abbreviations</b>
EINECS	European Inventory of Existing Commercial Chemical Substances
EL50	Effective Loading 50 %: the EL50 corresponds to the loading rate required to produce a response in 50% of the test organisms
ELINCS	European List of Notified Chemical Substances
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
IMDG	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
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
LL50	Lethal Loading 50 %: the LL50 corresponds to the loading rate causing 50 % lethality
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NOELR	No Observed Effect Loading Rate
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
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
SVHC	Substance of Very High Concern
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.  
Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.

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Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).  
International Maritime Dangerous Goods Code (IMDG).  
Dangerous Goods Regulations (DGR) for the air transport (IATA).

## **Classification procedure**

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

## **Responsible for the safety data sheet**

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Düsseldorfer Str. 113  
47809 Krefeld, Germany

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## **Disclaimer**

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