

CLARIANT 

Date of printing : 11.03.2021

### Warning

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



**ActiSorb® S5 Extr. 4.7**

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Hazard statements : H319 Causes serious eye irritation.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P264 Wash skin thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear eye protection/ face protection.

**Response:**

P337 + P313 If eye irritation persists: Get medical advice/  
attention.  
P391 Collect spillage.

**Disposal:**

P501 Dispose of contents/ container to an approved waste  
disposal plant.

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

No additional hazards are known except those derived from the labelling.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Components

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number                                                                                                                                                                                     | Classification                                                                                                                               | Concentration<br>(% w/w) |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Zinc oxide    | 1314-13-2<br>215-222-5<br>030-013-00-7<br>01-2119463881-32<br>01-2119463881-32-0000<br>01-2119463881-32-0004<br>01-2119463881-32-0016<br>01-2119463881-32-0018<br>01-2119463881-32-0043<br>01-2119463881-32-0060<br>01-2119463881-32-XXXX | Aquatic Acute 1;<br>H400<br>Aquatic Chronic 1;<br>H410<br><br>M-Factor (Acute aquatic toxicity): 1<br>M-Factor (Chronic aquatic toxicity): 1 | >= 70 - < 90             |
| Copper oxide  | 1317-38-0<br>215-269-1<br>029-016-00-6                                                                                                                                                                                                    | Aquatic Acute 1;<br>H400<br>Aquatic Chronic 1;                                                                                               | >= 2,5 - < 10            |

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|  |                       |                                                                                  |  |
|--|-----------------------|----------------------------------------------------------------------------------|--|
|  | 01-2119502447-44-0011 | H410                                                                             |  |
|  | 01-2119502447-44-0043 | M-Factor (Acute aquatic toxicity): 100<br>M-Factor (Chronic aquatic toxicity): 1 |  |

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Take off all contaminated clothing immediately.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : Remove to fresh air.  
Call a physician if irritation develops or persists.  
Call a physician if symptoms occur.
- In case of skin contact : Wash off immediately with soap and plenty of water.  
If symptoms persist, call a physician.
- In case of eye contact : Do not rub affected area.  
Rinse immediately with plenty of lukewarm water, also under the eyelids, for at least 15 minutes.  
Obtain medical attention.
- If swallowed : Rinse mouth.  
Get immediate medical advice/ attention.

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

- Symptoms : irritant effects
- Risks : Causes serious eye irritation.

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

- Treatment : Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Water spray  
Carbon dioxide (CO<sub>2</sub>)  
Foam  
Dry chemical
- Unsuitable extinguishing media : High volume water jet

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## 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : In case of fires, hazardous combustion gases are formed:  
Carbon monoxide (CO)  
Carbon monoxide  
In case of fire hazardous decomposition products may be produced such as:  
breathable copper oxide dust

## 5.3 Advice for firefighters

Special protective equipment for firefighters : Wear personal protective equipment.  
  
Further information : Standard procedure for chemical fires.

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## SECTION 6: Accidental release measures

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

Personal precautions : Ensure adequate ventilation.  
Avoid dust formation.  
Wear personal protective equipment.  
Avoid contact with skin, eyes and clothing.

### 6.2 Environmental precautions

Environmental precautions : Should not be released into the environment.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Take up uncontaminated material and pass on for further processing.  
Take up contaminated material by mechanical means, load into clean containers, and dispose of in accordance with legal regulations.

### 6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Avoid formation of dust and aerosols.  
Handle with care to avoid abrasion or breakage.  
  
Advice on protection against fire and explosion : In case of inappropriate handling, spent catalyst can be self-heating when in contact with air.  
  
Hygiene measures : Keep working clothes separately. Keep away from food and drink. Avoid contact with skin, eyes and clothing. Wear suitable protective clothing. Ensure adequate ventilation.

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Wash skin thoroughly after handling.

## 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage : Keep tightly closed in a dry and cool place.  
areas and containers

Advice on common storage : No materials to be especially mentioned.

Further information on : Stable under recommended storage conditions.  
storage stability

## 7.3 Specific end use(s)

Specific use(s) : Not relevant

# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

| Substance name                     | End Use            | Exposure routes | Potential health effects   | Value               |
|------------------------------------|--------------------|-----------------|----------------------------|---------------------|
| Zinc oxide<br>CAS-No.: 1314-13-2   | Workers            | Inhalation      | Long-term local effects    | 0,5 mg Zn/m3        |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | Workers            | Inhalation      | Long-term systemic effects | 5 mg Zn/m3          |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | Workers            | Dermal          | Long-term systemic effects | 83 mg/kg bw/day     |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | General population | Dermal          | Long-term systemic effects | 83 mg/kg bw/day     |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | General population | Inhalation      | Long-term systemic effects | 2,5 mg/m3           |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | General population | Ingestion       | Long-term systemic effects | 0,83 mg/kg bw/day   |
| Remarks:                           | DNEL               |                 |                            |                     |
| Copper oxide<br>CAS-No.: 1317-38-0 | Workers            | Dermal          | Long-term systemic effects | 137 mg Cu/kg bw/d   |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | Workers            | Oral            | Long-term systemic effects | 0,041 mg Cu/kg bw/d |
| Remarks:                           | DNEL               |                 |                            |                     |
| Graphite<br>CAS-No.: 7782-42-5     | Workers            | Inhalation      | Long-term local effects    | 1,2 mg/m3           |
| Remarks:                           | DNEL               |                 |                            |                     |
|                                    | General population | Inhalation      | Long-term local effects    | 0,3 mg/m3           |

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|          |                    |           |                            |                  |
|----------|--------------------|-----------|----------------------------|------------------|
| Remarks: | DNEL               |           |                            |                  |
|          | General population | Ingestion | Long-term systemic effects | 813 mg/kg bw/day |
| Remarks: | DNEL               |           |                            |                  |

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

| Substance name                     | Environmental Compartment | Value                         |
|------------------------------------|---------------------------|-------------------------------|
| Zinc oxide<br>CAS-No.: 1314-13-2   | Fresh water               | 0,0206 mg/l                   |
|                                    | salt water                | 0,0061 mg/l                   |
|                                    | Fresh water sediment      | 117,8 mg/kg dry weight (d.w.) |
|                                    | Marine sediment           | 113 mg/kg dry weight (d.w.)   |
|                                    | Soil                      | 106,8 mg/kg dry weight (d.w.) |
|                                    | Sewage treatment plant    | 0,052 mg/l                    |
| Copper oxide<br>CAS-No.: 1317-38-0 | Fresh water               | 0,0078 mg Cu/l                |
|                                    | Marine water              | 0,0052 mg Cu/l                |
|                                    | Fresh water sediment      | 87 mg Cu/kg                   |
|                                    | Soil                      | 65,5 mg Cu/kg                 |
|                                    | Sewage treatment plant    | 0,23 mg Cu/l                  |

## 8.2 Exposure controls

### Engineering measures

Use ventilation adequate to keep exposures below recommended exposure limits. See the safety datasheet.

### Personal protective equipment

Eye protection : Goggles

Hand protection  
Remarks : Rubber gloves

Skin and body protection : Dust impervious protective suit

Respiratory protection : In the case of dust or aerosol formation use respirator with filter model P3 (according to DIN 3181, 1980).

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : Solid form

Colour : grey

Odour : odourless

Odour Threshold : Not relevant

pH : Not applicable insoluble

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|                                                  |                       |
|--------------------------------------------------|-----------------------|
| Melting point                                    | : > 1.600 °C          |
| Boiling point                                    | : Not applicable      |
| Flash point                                      | : does not flash      |
| Evaporation rate                                 | : Not applicable      |
| Flammability (solid, gas)                        | : not determined      |
| Burning number                                   | : not determined      |
| Upper explosion limit / upper flammability limit | : Not applicable      |
| Lower explosion limit / Lower flammability limit | : Not applicable      |
| Vapour pressure                                  | : Not applicable      |
| Relative vapour density                          | : Not applicable      |
| Relative density                                 | : not tested.         |
| Density                                          | : 1,0 - 1,6 g/cm3     |
| Bulk density                                     | : 1.000 - 1.600 kg/m3 |
| Solubility(ies)                                  |                       |
| Water solubility                                 | : insoluble           |
| Solubility in other solvents                     | : not tested.         |
| Partition coefficient: n-octanol/water           | : not determined      |
| Auto-ignition temperature                        | : Not applicable      |
| Decomposition temperature                        | : no data available   |
| Viscosity                                        |                       |
| Viscosity, dynamic                               | : Not applicable      |
| Viscosity, kinematic                             | : Not applicable      |
| Flow time                                        | : Not applicable      |
| Explosive properties                             | : no data available   |
| Oxidizing properties                             | : not tested.         |

## 9.2 Other information

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Sublimation point : not determined

Minimum ignition energy : not tested.

Particle size : not tested.

Self-ignition : not tested.

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

Stable

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use. Stable

### 10.4 Conditions to avoid

Conditions to avoid : None known.

### 10.5 Incompatible materials

Materials to avoid : not known

### 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product:

Acute oral toxicity : Remarks: no data available

Acute dermal toxicity : Remarks: no data available

##### Components:

##### **Zinc oxide:**

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg  
Method: OECD Test Guideline 401  
GLP: No information available.  
Remarks: No significant adverse effects were reported

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,7 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

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Method: OECD Test Guideline 403

GLP: No information available.

Assessment: The substance or mixture has no acute inhalation toxicity

- Acute dermal toxicity : LC50 (Rat, male and female): > 2.000 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Assessment: The substance or mixture has no acute dermal toxicity
- Acute toxicity (other routes of administration) : LD50 (Rat): 240 mg/kg  
Application Route: Intraperitoneal injection

**Copper oxide:**

- Acute oral toxicity : LD50 (Rat, male): > 2.500 mg/kg  
Method: OECD Test Guideline 423  
GLP: yes  
Assessment: The substance or mixture has no acute oral toxicity

- Acute inhalation toxicity : Remarks: no data available

- Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

**Product:**

- Species : Rabbit  
Exposure time : 24 h  
Method : Draize Test  
Result : Mild skin irritant  
Remarks : Information based on the active ingredient.

**Components:**

**Zinc oxide:**

- Species : Rabbit  
Exposure time : 24 h  
Method : OECD Test Guideline 404  
Result : No skin irritation  
GLP : No information available.

**Copper oxide:**

- Species : Rabbit  
Exposure time : 4 h  
Method : OECD Test Guideline 404

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Result : No skin irritation  
GLP : yes

**Serious eye damage/eye irritation**

**Product:**

Species : Rabbit  
Exposure time : 24 h  
Method : Draize Test  
Result : Mild eye irritant  
Remarks : Information based on the active ingredient.

**Components:**

**Zinc oxide:**

Species : Rabbit  
Exposure time : 24 h  
Method : OECD Test Guideline 405  
Result : No eye irritation  
GLP : yes

**Copper oxide:**

Species : Rabbit  
Exposure time : 72 h  
Method : OECD Test Guideline 405  
Result : No eye irritation  
GLP : yes

**Respiratory or skin sensitisation**

**Product:**

Remarks : no data available

**Components:**

**Zinc oxide:**

Test Type : Maximisation Test  
Exposure routes : Dermal  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Not a skin sensitizer.  
GLP : yes

**Copper oxide:**

Test Type : Maximisation Type  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Not a skin sensitizer.  
GLP : yes

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### Germ cell mutagenicity

#### Components:

##### **Zinc oxide:**

Genotoxicity in vitro

: Test Type: Ames test  
Test system: Salmonella typhimurium  
Concentration: 0; 20; 100; 500; 2 500 and 5 0  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

Test Type: In vitro gene mutation study in mammalian cells  
Test system: mouse lymphoma cells  
Concentration: 2.5, 5, 7.5, and 10 µg/ml  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
GLP: yes

Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster lung cells  
Concentration: 0, 5, 10, and 20 µg/mL  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
Result: negative  
GLP: yes

Test Type: Micronucleus test  
Test system: Human epithelioid cells  
Concentration: 0, 5, 10, 25, 50 and 75 µg/mL  
Metabolic activation: without  
Method: OECD Test Guideline 487  
Result: negative  
GLP: No information available.

Genotoxicity in vivo

: Test Type: Micronucleus test  
Species: Mouse (male)  
Strain: NMRI  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Dose: 15, 30 and 60 mg/kg bw  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

Germ cell mutagenicity-  
Assessment

: In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

##### **Copper oxide:**

Genotoxicity in vitro

: Test Type: Ames test

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Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

Germ cell mutagenicity-  
Assessment : In vitro tests did not show mutagenic effects

### Carcinogenicity

#### Components:

##### **Zinc oxide:**

Species : Mouse, male and female  
Application Route : Drinking water  
Exposure time : 52 wk  
Dose : 4,4 and 22 g/L nom. in water  
Frequency of Treatment : daily  
NOAEL : > 22.000 mg/l  
Method : Other  
GLP : No information available.  
Remarks : By analogy with a product of similar composition

Carcinogenicity -  
Assessment : No evidence of carcinogenicity in animal studies.

##### **Copper oxide:**

Carcinogenicity -  
Assessment : No evidence of carcinogenicity in animal studies.

### Reproductive toxicity

#### Components:

##### **Zinc oxide:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Strain: Sprague-Dawley  
Application Route: oral (gavage)  
Dose: 0, 7.5, 15, 30 mg/kg bw/day  
Duration of Single Treatment: 88 - 130 d  
General Toxicity - Parent: LOAEL: 7,5 mg/kg body weight  
General Toxicity F1: NOAEL: 15 mg/kg body weight  
Method: OECD Test Guideline 416  
GLP: no  
Remarks: By analogy with a product of similar composition

Effects on foetal  
development : Test Type: Pre-natal  
Species: Hamster, females  
Application Route: oral (gavage)  
Dose: 0.9, 4.1, 19 and 88 mg/kg bw  
Duration of Single Treatment: 5 d

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General Toxicity Maternal: NOAEL: 88 mg/kg body weight  
Teratogenicity: NOAEL: 88 mg/kg body weight  
Method: Other  
GLP: No information available.  
Remarks: By analogy with a product of similar composition

Test Type: Pre-natal  
Species: Mouse, females  
Strain: CD1  
Application Route: oral (gavage)  
Dose: 0.3, 1.4, 6.5 and 30 mg  
Duration of Single Treatment: 9 d  
General Toxicity Maternal: NOAEL: 30 mg/kg body weight  
Teratogenicity: NOAEL: 30 mg/kg body weight  
Method: Other  
GLP: No information available.  
Remarks: By analogy with a product of similar composition

Test Type: Pre-natal  
Species: Rat, females  
Strain: wistar  
Application Route: inhalation (dust/mist/fume)  
Dose: 0.3, 1.5, and 7.5 mg/m<sup>3</sup> (targ  
Duration of Single Treatment: 14 d  
Method: OECD Test Guideline 414  
GLP: yes  
Remarks: By analogy with a product of similar composition

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

**Copper oxide:**

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Strain: Sprague-Dawley  
Application Route: oral (feed)  
Dose: 0, 100, 500, 1000, 1500 ppm  
General Toxicity - Parent: NOAEL: 23,6 - 33,8 mg/kg body weight  
General Toxicity F1: NOAEL: 23,5 - 35,2 mg/kg body weight  
Method: OECD Test Guideline 416  
GLP: yes

Effects on foetal development : Test Type: Pre-natal  
Species: Rabbit, female  
Strain: New Zealand white  
Application Route: oral (gavage)  
General Toxicity Maternal: NOAEL: 6 mg/kg body weight  
Developmental Toxicity: NOAEL: 6 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

Reproductive toxicity - : No evidence of adverse effects on sexual function and fertility,

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Assessment or on development, based on animal experiments.

**STOT - single exposure**

**Components:**

**Zinc oxide:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

**Copper oxide:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

**STOT - repeated exposure**

**Components:**

**Zinc oxide:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Copper oxide:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Repeated dose toxicity**

**Components:**

**Zinc oxide:**

Species : Rat, male and female  
NOEL : 234 - 243 mg/kg bw/day  
Application Route : oral (feed)  
Exposure time : 13 wk  
Number of exposures : daily  
Dose : 0, 300, 3000, 30000 ppm in die  
Control Group : yes  
Method : OECD Test Guideline 408  
GLP : no  
Remarks : By analogy with a product of similar composition

Species : Rat, male and female  
NOAEC : 0,0005 mg/l  
Application Route : Inhalation  
Test atmosphere : dust/mist  
Exposure time : 28 d  
Number of exposures : 6 h/day, 5 days/week  
Dose : 0.5, 1.5, 3.0 and 4.5 mg/m<sup>3</sup>  
Control Group : yes  
Method : OECD Test Guideline 412  
GLP : yes

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Species : Rat, male and female  
LOAEL : 75 mg/kg  
Application Route : Dermal  
Exposure time : 28 d  
Number of exposures : (6 h per day for 5 d/week)  
Dose : 0, 75, 180, and 360 mg/kg bw/d  
Control Group : yes  
Method : OECD Test Guideline 410  
GLP : yes

**Copper oxide:**

Species : Mouse, male and female  
NOAEL : 44 - 52 mg/kg bw/day  
Application Route : oral (feed)  
Exposure time : 92 d  
Number of exposures : daily  
Dose : 0, 1000, 2000, 4000, 8000 or 1  
Method : Regulation (EC) No. 440/2008, Annex, B.26  
GLP : yes

Species : Rat, male and female  
NOAEL :  $\geq 0,002$  mg/l  
Application Route : inhalation (dust/mist/fume)  
Exposure time : 28 d  
Number of exposures : 5 days per week, 6 hours per d  
Dose : 0.2, 0.4, 0.8, 2.0 mg/m<sup>3</sup>  
Method : OECD Test Guideline 412  
GLP : yes

**Aspiration toxicity**

**Components:**

**Zinc oxide:**

No aspiration toxicity classification

**Copper oxide:**

No aspiration toxicity classification

**Further information**

**Product:**

Remarks : No data is available on the product itself.  
Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

Toxicity to fish : Remarks: no data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: no data available

Toxicity to algae/aquatic plants : Remarks: no data available

Toxicity to microorganisms : Remarks: no data available

#### Components:

##### **Zinc oxide:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0,78 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: static test  
Analytical monitoring: yes  
Method: Other  
GLP: No information available.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 0,416 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 202  
GLP: No information available.  
Remarks: By analogy with a product of similar composition

Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): 0,054 mg/l  
End point: Growth rate  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 201  
GLP: No information available.  
Remarks: By analogy with a product of similar composition

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): > 1.000 mg/l  
End point: Bacteria toxicity (respiration inhibition)  
Exposure time: 3 h  
Test Type: static test

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Method: OECD Test Guideline 209

GLP: yes

NOEC (activated sludge): 17 mg/kg dry weight (d.w.)

End point: Bacteria toxicity (respiration inhibition)

Exposure time: 84 d

Test Type: static test

Analytical monitoring: yes

Method: Other

GLP: no

Toxicity to fish (Chronic toxicity)

: NOEC: 0,44 mg/l

End point: mortality

Exposure time: 72 d

Species: Oncorhynchus mykiss (rainbow trout)

Test Type: flow-through test

Analytical monitoring: yes

Method: Other

GLP: No information available.

Remarks: By analogy with a product of similar composition

NOEC: 0,057 - 0,25 mg/l

End point: mortality

Exposure time: 116 d

Species: Salmo trutta (brown trout)

Test Type: flow-through test

Analytical monitoring: yes

Method: OECD Test Guideline 210

GLP: No information available.

Remarks: By analogy with a product of similar composition

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

: NOEC: 0,0056 mg/l

End point: mortality

Exposure time: 24 d

Species: Other

Test Type: semi-static test

Analytical monitoring: yes

Method: Other

GLP: No information available.

M-Factor (Chronic aquatic toxicity)

: 1

Plant toxicity

: IC50: 51 mg/l

Exposure time: 12 d

End point: Growth

Species: Lolium perenne

Analytical monitoring: no

Method: Other

GLP: No information available.

Sediment toxicity

: NOEC: 850 mg/kg dry weight (d.w.)

Analytical monitoring: yes

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Solvent: no  
Duration: 56 d  
Test Type: semi-static test  
Sediment: Natural sediment  
Exposure duration: 56 d  
Species: Chironomus tentans  
Basis for effect: Growth  
Method: Other  
GLP: No information available.

#### Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

#### Copper oxide:

Toxicity to fish : Remarks: no data available

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 1

#### Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

### 12.2 Persistence and degradability

#### Product:

Biodegradability : Remarks: Not applicable

#### Components:

##### Zinc oxide:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

##### Copper oxide:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: no data available

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**Components:**

**Zinc oxide:**

Bioaccumulation : Remarks: Not applicable

**Copper oxide:**

Bioaccumulation : Remarks: Not applicable

**12.4 Mobility in soil**

**Product:**

Distribution among environmental compartments : Remarks: no data available

**Components:**

**Zinc oxide:**

Distribution among environmental compartments : Medium: water - soil  
Kd: 158,5 - 6.010 ml/g, log Kd: 2,2 - 3,78

**Copper oxide:**

Distribution among environmental compartments : Remarks: After release, adsorbs onto soil.

**12.5 Results of PBT and vPvB assessment**

**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

**Components:**

**Zinc oxide:**

Assessment : The substance is not identified as a PBT or as a vPvB substance..

**Copper oxide:**

Assessment : Remarks: Not relevant for inorganic substances

**12.6 Other adverse effects**

**Product:**

Additional ecological information : May cause long lasting harmful effects to aquatic life.  
Do not allow to enter ground water, waterways or waste water.

**Components:**

**Zinc oxide:**

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Additional ecological information : obviously hazardous to water

**Copper oxide:**

Additional ecological information : slightly hazardous to water

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**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

Product : Refer to manufacturer/supplier for information on recovery/recycling.  
Used catalysts may have different hazards or properties than the original product. This Product Information does not apply to used catalysts.

Contaminated packaging : Dispose of as unused product.

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**SECTION 14: Transport information**

**Section 14.1. to 14.5.**

**ADR**

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| UN no.                | UN 3077                                            |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | zinc oxide<br>Copper oxide                         |
| Class:                | 9                                                  |
| Primary risk:         | 9                                                  |
| Packing group:        | III                                                |
| Hazard no. :          | 90                                                 |
| Remarks               | Shipment permitted                                 |

**ADN**

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| UN no.                | UN 3077                                            |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | zinc oxide<br>Copper oxide                         |
| Class:                | 9                                                  |
| Primary risk:         | 9                                                  |
| Packing group:        | III                                                |
| Remarks               | Shipment permitted                                 |

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#### RID

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| UN no.                | UN 3077                                            |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | zinc oxide<br>Copper oxide                         |
| Class:                | 9                                                  |
| Primary risk:         | 9                                                  |
| Packing group:        | III                                                |
| Hazard no. :          | 90                                                 |
| Remarks               | Shipment permitted                                 |

#### IATA

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| UN no.                | UN 3077                                            |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | zinc oxide<br>Copper oxide                         |
| Class:                | 9                                                  |
| Primary risk:         | 9                                                  |
| Packing group:        | III                                                |
| Remarks               | Shipment permitted                                 |

#### IMDG

|                       |                                                    |
|-----------------------|----------------------------------------------------|
| UN no.                | UN 3077                                            |
| Proper shipping name: | Environmentally hazardous substance, solid, n.o.s. |
| Hazard inducer(s):    | zinc oxide<br>Copper oxide                         |
| Class:                | 9                                                  |
| Primary risk:         | 9                                                  |
| Packing group:        | III                                                |
| Remarks               | Shipment permitted                                 |
| Marine pollutant:     | Marine Pollutant                                   |
| EmS :                 | F-A S-F                                            |

#### 14.6. Special precautions for user

See sections 6 to 8 of this Safety Data Sheet.

#### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code (International Bulk Chemicals Code)

No transport as bulk according IBC - Code.

#### Further information

Non-dangerous good of class 9 for packagings <= 5 L / 5 kg

### SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

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Regulation (EC) No 1005/2009 on substances that  
deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic  
pollutants (recast) : Not applicable

**Other regulations:**

Apart from the data/regulations specified in this chapter, no further information is available concerning safety, health and environmental protection.

**15.2 Chemical safety assessment**

Chemical Safety Assessments (CSAs) are available for one or more of the component substances contained in this product.

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**SECTION 16: Other information**

**Full text of H-Statements**

H400 : Very toxic to aquatic life.  
H410 : Very toxic to aquatic life with long lasting effects.

**Full text of other abbreviations**

Aquatic Acute : Short-term (acute) aquatic hazard  
Aquatic Chronic : Long-term (chronic) aquatic hazard

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council

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concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

**Classification of the mixture:**

|                   |      |
|-------------------|------|
| Eye Irrit. 2      | H319 |
| Aquatic Acute 1   | H400 |
| Aquatic Chronic 1 | H410 |

**Classification procedure:**

|                                     |
|-------------------------------------|
| Based on product data or assessment |
| Calculation method                  |
| Calculation method                  |

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