ZINC PHOSPHATE PZ20/PZW2
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)
Date of issue: 4/20/2018 Version: 1.0

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

1.1. Product identifier

Product form : Substance
Trade name : ZINC PHOSPHATE PZ20/PZW2
Chemical name : trizinc bis(orthophosphate)
IUPAC name : TriZinc bis(Orthophosphate)
REACH registration No : 01-2119485044-40-0001
Type of product : Mineral
Formula : Zn3(PO4)2,xH2O  2<xH2O<4 [4H2O=PZ20 - 2H2O=PZW2]

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

1.2.1. Relevant identified uses

Main use category : Industrial use, Professional use, Consumer use
Industrial/Professional use spec : Use resulting in inclusion into or onto a matrix
Use of the substance/mixture : Paints, Ink, Fertilizer, Metal surface treatment products, including galvanic and electroplating products
Function or use category : Pigment, Corrosion inhibitor, Formulation of preparations, Fertilizer, Metal surface treatment products, including galvanic and electroplating products, Use as laboratory reagent

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer
SNCZ (Société Nouvelle des Couleurs Zinciques)
45-49, Chaussée Jules César
95250 BEAUCHAMP - FRANCE
T +33 130405757 - F +33 139607834
msds@sncz.net - www.sncz.com

Sales department
SNCZ (Société Nouvelle des Couleurs Zinciques)
45-49, Chaussée Jules César
95250 BEAUCHAMP - FRANCE
T +33 130405757 - F +33 139607834
msds@sncz.net - www.sncz.com

1.4. Emergency telephone number

Emergency number : +33 1 30 40 57 57 (FRANCE)
24-H/24-H 7 days/week international emergency number: +1 703 527 3887 (CHEMTREC - USA)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
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</thead>
<tbody>
<tr>
<td>USA</td>
<td>CHEMTREC 24-hour national emergency number</td>
<td></td>
<td>800 424 9300 (USA)</td>
<td>Operating hours 24 hours / 24 hours, 7 days a week</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazardous to the aquatic environment — H400
Acute Hazard, Category 1
Hazardous to the aquatic environment — H410
Chronic Hazard, Category 1

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects
Very toxic to aquatic life with long lasting effects. M-Factor acute (GHS-UN)=1.
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according to Regulation (EC) No. 1907/2006 (REACH)

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP) : 

Signal word (CLP) : Warning
Hazard statements (CLP) : H410 - Very toxic to aquatic life with long lasting effects.
Precautionary statements (CLP) : P273 - Avoid release to the environment.
P391 - Collect spillage.
P501 - Dispose of contents and container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions. Do not allow product to spread into the environment.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : ZINC PHOSPHATE PZ20/PZW2

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>trizinc bis(orthophosphate)</td>
<td>(Constituent)</td>
</tr>
<tr>
<td>(CAS-No.)</td>
<td>7779-90-0</td>
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<tr>
<td>(EC-No.)</td>
<td>231-944-3</td>
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<td>(REACH-no)</td>
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<td>%</td>
<td>&gt; 97</td>
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<td>Classification according to Regulation (EC) No. 1272/2008 [CLP]</td>
<td>Aquatic Acute 1, H400, Aquatic Chronic 1, H410</td>
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<tr>
<td>zinc oxide</td>
<td>(Impurity)</td>
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<td>(CAS-No.)</td>
<td>1314-13-2</td>
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<tr>
<td>(EC-No.)</td>
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<tr>
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<td>Aquatic Acute 1, H400, Aquatic Chronic 1, H410</td>
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</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Remove person to uncontaminated area. Remove victim to fresh air. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. In case of doubt or persistent symptoms, consult always a physician. Place under medical control.
First-aid measures after skin contact : Rinse and then wash skin thoroughly with water and soap. If on skin, take off contaminated clothing.
First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles: Consult an eye specialist.
First-aid measures after ingestion : Rinse mouth thoroughly with water. Immediately consult a doctor/medical service. Place under medical control. Treat symptomatically. Gastrointestinal complaints.

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

Symptoms/effects : Zinc. Intoxication.
Symptoms/effects after inhalation : Metal fume fever. None under normal use. May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
Symptoms/effects after skin contact : None under normal conditions. Slight irritation.
Symptoms/effects after eye contact : Mild eye irritation. Redness, itching, tears.
Symptoms/effects after ingestion : Digestive disorder.
Chronic symptoms : Dust of the product, if present, may cause respiratory irritation after an excessive inhalation exposure.
4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically. Specific treatment is necessary. Zinc.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Unsuitable extinguishing media: Apply aqueous extinguishing media carefully. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Contain the extinguishing fluids by bunding (the product is hazardous for the environment).

5.2. Special hazards arising from the substance or mixture
Explosion hazard: No direct explosion hazard. Avoid creating or spreading dust.
Reactivity in case of fire: Keep the substance free from contamination. Prevent soil and water pollution. Dam up the liquid spill. Contain the spilled material by bunding.
Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Precautionary measures fire: Waterproof retention basin. Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers. Not degradable in the soil. Contain the extinguishing fluids by bunding. Do not allow run-off from fire fighting to enter drains or water courses. Very toxic to aquatic life with long lasting effects.
Firefighting instructions: Not combustible. Flame retardant. Isolate from fire, if possible, without unnecessary risk. Keep upwind. Avoid raising dust. Very toxic to aquatic life with long lasting effects. Do not allow product to spread into the environment. Soil-Contaminating Substances. Dike and contain spill. Recover as much product as possible. Carefully collect remainder. Contain the extinguishing fluids by bunding (the product is hazardous for the environment). Place in an appropriate container and dispose of the contaminated material at a licensed site. Do not allow run-off from fire-fighting to enter drains or water courses. Do not dispose of fire-fighting water in the environment.
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Extra personal protection: complete protective clothing including self-contained breathing apparatus.
Other information: Do not touch or walk on the spilled product. Dike and contain spill.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: . Individual protection measures/Personal protective equipment. Avoid dust formation.
. Measures for environmental protection. Do not discharge into drains or the environment.

6.1.1. For non-emergency personnel
Protective equipment: Appropriate dust or mist respirator should be used if airborne particles are generated when handling this material.
Emergency procedures: . Keep container tightly closed and dry.
. Isolate from fire, if possible, without unnecessary risk.
. Do not touch or walk on the spilled product.
. Ventilate spillage area.
. Unauthorized persons are not admitted.
Measures in case of dust release: Clean up methods. Avoid dust formation. Dust production: dust mask with filter type: P1, P2, P3 (Refer to chapter 8).

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
. Do not allow to enter drains or water courses.
. Contain the spilled material by bunding (product is hazardous for the environment).
. Use closed containers for waste packaging and confinement.

6.2. Environmental precautions
Contain the spilled material by bunding. Do not allow to enter drains or water courses. Danger of pollution of drinking water when product enters the soil. Do not discharge into drains or the environment. Sweep or shovel spills into appropriate container for disposal. Minimize water use for cleaning. Get the package away from the fire if this can be done without risk. Assure discharge complies with applicable regulations. Soil-Contaminating Substances.

6.3. Methods and material for containment and cleaning up
For containment: Collect spillage. Dike and contain spill. Collect all waste in suitable and labelled containers and dispose according to local legislation.
Methods for cleaning up: Mechanically recover the product. Sweeping or shovelling without dust for disposal. Dust deposited may be vacuum cleaned or the area hosed down with water. Use closed containers for waste packaging and confinement.

Other information: Do not discharge into drains or the environment. Do not bring to dump. Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: Avoid dust production. Avoid all unnecessary exposure. Avoid raising dust. Avoid breathing dust, mist or spray. Working area. Local exhaust and general ventilation must be adequate to meet exposure standards. If the ventilation is suitable, it is not essential to wear respiratory equipment. In case of insufficient ventilation, wear suitable respiratory equipment. Do not flush into surface water or sewer system.

Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment. Keep container tight closed. Keep away from food, drink and animal feeding stuffs. Take precautionary measures to prevent the formation of static electricity.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Materials that will not burn. Store in original container. Store in tightly closed containers. Store in a dry place. Keep away from food, drink and animal feeding stuffs. The floor of the depot should be impermeable and designed to form a water-tight basin. Use care during processing to minimize generation of dust.

Storage conditions: The product is stable at normal handling and storage conditions. Store in a dry, cool area. Store in a well-ventilated place. Keep container tightly closed.


Packaging materials: Store always product in container of same material as original container.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>ZINC PHOSPHATE PZ20/PZW2</th>
<th>EU</th>
<th>Assessed dust without specific effect (other particles, not classified anywhere else) (inhalable dust): 10 mg/m³</th>
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</table>

<table>
<thead>
<tr>
<th>trizinc bis(orthophosphate) (7779-90-0)</th>
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<tbody>
<tr>
<td>France</td>
<td>VME (mg/m³)</td>
<td>10 mg/m³ 5 mg/m³ (fraction alvéolaire)</td>
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<td>France</td>
<td>Note (FR)</td>
<td>Valeurs réglementaires contraignantes</td>
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<td>Germany</td>
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<tr>
<td>Germany</td>
<td>TRGS 900 Occupational exposure limit value (ppm)</td>
<td>&lt; 3 mg/m³ respirable dust TRGS 559</td>
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<td>MAK (DE) dust (Occupational Exposure Limits): 6 mg/m³</td>
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<td>Local name</td>
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<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Dust (UK) (WEL (8 hours ref) 8-hour TWA of respirable dust): 4 mg/m³</td>
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<tr>
<td>USA - ACGIH</td>
<td>Local name</td>
<td>Total dust (no special effect)</td>
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<tr>
<td>USA - ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
<td>&lt; 10 mg/m³</td>
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Monitoring methods

| Monitoring methods | Workplace exposure - General requirements for the performance of procedures for the measurement of chemical agents |

<table>
<thead>
<tr>
<th>ZINC PHOSPHATE PZ20/PZW2</th>
<th>DNEL/DMEL (Workers)</th>
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<tr>
<td>Acute - systemic effects, dermal</td>
<td>No observed effects</td>
</tr>
<tr>
<td>Acute - systemic effects, inhalation</td>
<td>No observed effects</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>ZINC PHOSPHATE PZ20/PZW2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute - local effects, dermal</td>
</tr>
<tr>
<td>Acute - local effects, inhalation</td>
</tr>
<tr>
<td>Long-term - systemic effects, dermal</td>
</tr>
<tr>
<td>Long-term - local effects, dermal</td>
</tr>
<tr>
<td>Long-term - systemic effects, inhalation</td>
</tr>
<tr>
<td>Long-term - local effects, inhalation</td>
</tr>
</tbody>
</table>

DNEL/DMEL (General population)

Acute - systemic effects, dermal | No observed effects |
Acute - systemic effects, inhalation | No observed effects |
Acute - systemic effects, oral | No observed effects |
Acute - local effects, dermal | No observed effects |
Acute - local effects, inhalation | No observed effects |
Long-term - systemic effects, oral | DNEL oral Insoluble Zinc = 50 mg Zn/day (0.83 mg Zn/kg bodyweight/day) |
Long-term - systemic effects, inhalation | DNEL inhalation Insoluble (General population) Zn = 2.5 mg/m³ |
Long-term - systemic effects, dermal | DNEL skin insoluble Zn = 5000 mg Zn/day (83 mg Zn/kg bodyweight/day) |
Long-term - local effects, dermal | No observed effects |
Long-term - local effects, inhalation | No observed effects |

PNEC (Water)

PNEC aqua (freshwater) | 0.0206 mg/l Zinc Concentration |
PNEC aqua (marine water) | 0.0061 mg/l Zinc Concentration |

PNEC (Sediment)

PNEC sediment (freshwater) | 117.8 mg/kg dwt Zinc Concentration |
PNEC sediment (marine water) | 56.5 mg/kg dwt Zinc Concentration |
PNEC (Soil) | 35.6 mg/kg dwt Zinc Concentration |

PNEC (Oral)

PNEC oral (secondary poisoning) | Not potentially bioaccumulative |
PNEC (STP) | 0.1 mg/l Zinc Concentration |

PNEC (additional information) | PNEC. Value. Zinc Concentration |

8.2. Exposure controls

Appropriate engineering controls:

- Handle product only in closed system or provide appropriate exhaust ventilation. Containment as appropriate.
- Exposure controls.
- Worker. Ensure good ventilation of the work station. Observe strict hygiene. Avoid raising dust. Extraction to remove dust at its source. Atmospheric monitoring at regular intervals.
- Environmental exposure controls. Do not discharge the product into the environment. Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil.
- Air. Use a dust filter. Local exhaust and general ventilation must be adequate to meet exposure standards. Efficiency >84%.
- Water. Dam up the liquid spill. Ensure effluents are compliant with applicable regulations.
- Soil. Waterproof retention basin. Dike and contain spill.

Personal protective equipment:

Dust formation: dust mask.

Materials for protective clothing:

- When skin contact is possible, protective clothing including gloves, apron, sleeves, boots, head and face protection must be worn. Efficiency >90%

Hand protection:

- Use loose-fitting rubber or leather gloves. Efficiency >90%. Chemical resistant gloves (according to European standard NF EN 374 or equivalent)

Eye protection:

- Safety glasses. optional

<table>
<thead>
<tr>
<th>Type</th>
<th>Use</th>
<th>Characteristics</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses</td>
<td>Fine dust</td>
<td>With side shields</td>
<td>EN 166</td>
</tr>
</tbody>
</table>

Skin and body protection:

- Protective clothing (with elasticated cuffs and closed neck): textiles, Tyvek® Gown/Coveralls... Efficiency >90%
Respiratory protection:
In case of excessive dust production. In the event of insufficient ventilation: > OEL/DNEL. Wear suitable respiratory equipment

<table>
<thead>
<tr>
<th>Device</th>
<th>Filter type</th>
<th>Condition</th>
<th>Standard</th>
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</thead>
<tbody>
<tr>
<td>Half-mask, Full face mask</td>
<td>Type P1</td>
<td>Dust protection, Efficiency 75%</td>
<td>EN 136, EN 140, EN 143, EN 149</td>
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<tr>
<td>Half-mask, Full face mask</td>
<td>Type P2</td>
<td>Dust protection, Efficiency 90%</td>
<td>EN 136, EN 140, EN 143, EN 149</td>
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<tr>
<td>Half-mask</td>
<td>Type P3</td>
<td>Dust protection, Efficiency 97.5%</td>
<td>EN 140, EN 143, EN 149</td>
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<tr>
<td>Full face mask</td>
<td>Type P3</td>
<td>Dust protection, Efficiency 97.5%</td>
<td>EN 136</td>
</tr>
</tbody>
</table>

Environmental exposure controls:
Avoid release to the environment. Avoid creating or spreading dust. Environmental exposure controls: water, air, soil. Efficiency >90%.

Other information:
Training staff on good practice. Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Normal overalls. Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state: Solid
- Appearance: Powder
- Molecular mass: 458.11 g/mol Zn3(PO4)2, 4H2O
- Colour: white
- Odour: odourless
- Odour threshold: Not relevant
- pH: 5.5 - 7.5 ISO 787/9 10g/100g suspension
- pH solution: Not relevant
- Relative evaporation rate (butylacetate=1): Not relevant
- Relative evaporation rate (ether=1): Not relevant
- Melting point: 846 °C
- Freezing point: Not relevant
- Boiling point: Not relevant
- Flash point: Not applicable, Not combustible
- Critical temperature: Not relevant
- Auto-ignition temperature: Not applicable, Not combustible
- Decomposition temperature: > 900 °C None under normal use
- Flammability (solid, gas): Not relevant, Not flammable
- Vapour pressure: Negligible vapour pressure at ambient conditions, Not applicable
- Vapour pressure at 50 °C: Not relevant
- Critical pressure: Not relevant
- Relative vapour density at 20 °C: Not relevant
- Relative density: Not relevant
- Relative density of saturated gas/air mixture: Not relevant
- Density: 3.3 g/ml ISO 787/10
- Relative gas density: Not relevant
- Solubility: Very slightly soluble in: water.
  Water: < 30 mg/l
  Organic solvent: Insoluble
- Log Pow: Not applicable, Inorganic Particulate Substances
- Log Kow: Inorganic Particulate Substances, Not applicable
- Viscosity, kinematic: Not relevant
- Viscosity, dynamic: Not relevant
Explosive properties: Product is not explosive.
Oxidising properties: Non oxidizing.
Explosive limits: Not relevant
Lower explosive limit (LEL): Not relevant
Upper explosive limit (UEL): Not relevant

Other information:
VOC content: Not applicable: solid mineral
Fat solubility: Insoluble in oils/fats
Bulk density: ≈ 0.7 g/cm³
Refractive index: ≈ 1.6
Other properties:
- Dehydration: 70-600°C Zn₃(PO₄)₂.4H₂O
- 120-600°C Zn₃(PO₄)₂.3H₂O
- 160-600°C Zn₃(PO₄),2H₂O.

Additional information: Take precautionary measures to prevent the formation of static electricity.

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions. The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions of use: Handling and storage.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7). Take precautionary measures to prevent the formation of static electricity.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified (Based on available data, the classification criteria are not met: > 2000 mg/kg bodyweight)

Acute toxicity (dermal): Not classified (Not classified. insoluble in oils/fats, insoluble in water. Based on available data, the classification criteria are not met: . LD50 dermal >2000 mg/kg bodyweight)

Acute toxicity (inhalation): Not classified (Not classified. Based on available data, the classification criteria are not met. LC50 inhalation rat (Dust/Mist - mg/l/4h) >5.7 mg/l 4H Classification by analogy: ZnO (Klimisch et al. 1982))

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<table>
<thead>
<tr>
<th>Test</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg &gt; 5000 mg/kg zinc phosphate (OECD 401 method)</td>
</tr>
<tr>
<td>LD50 dermal</td>
<td>&gt; 2000 mg/kg Classification by analogy: ZnO, No observed effects</td>
</tr>
<tr>
<td>LC50 inhalation rat (Dust/Mist - mg/l/4h)</td>
<td>5.7 mg/l/4h Classification by analogy: ZnO (Klimisch et al. 1982)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified (Not irritating.
- Skin. No observed effects, Classification by analogy: Löser 1977, Lansdown 1991.
- Respiratory tract. No observed effects. Classification by analogy: ZnO (Klimisch et al. 1982))

Serious eye damage/irritation: Not classified (Not irritating to eyes (Mirbeau et all, 1999). OECD 405 method)

Respiratory or skin sensitisation: Not classified (Based on available data, the classification criteria are not met.
- Respiratory tract. No information available.
- Skin. No sensitisation responses were observed. Van Huygevoort AHBM 1999)

Germ cell mutagenicity: Not classified (No observed effects, Classification by analogy: . compoundszinc. Inconclusive data)

Carcinogenicity: Not classified (Inconclusive data. Technical impossibility to obtain the data)
Reproductive toxicity: Not classified (Inconclusive data. No observed effects).
  - Fertility: NOAEL (Oral) >50 mg/kg bodyweight/day.
  - Developmental toxicity: NOAEL (subacute, oral, rat) NOAEL > 20mg/kg bodyweight/day)

STOT-single exposure: Not classified (No data available. No observed effects. Based on available data, the classification criteria are not met. Not classified: By analogy ZnO)

STOT-repeated exposure: Not classified (No observed effects. No data available. Based on available data, the classification criteria are not met. Not classified: By analogy ZnO)

Additional information: Specific target organ toxicity (repeated exposure)
  - Description
    - NOAEC respiratory system, lungs
    - NOAEC, Inhalation of dust Guinea pig, 2.7 mg/m3 ZnO (5 days)
    - NOAEL cardiovascular system, digestive system, pancreas, blood system
    - NOAEL (oral rat; 90 days) 13.3 mg Zn/kg, mg/kg bw/day)

Aspiration hazard: Systemic effect. long term.
  - DNEL (Workers) Inhalation of dust Insoluble Zn = 5 mg/m3.
  - DNEL inhalation Insoluble (General population) Zn = 2.5 mg/m3

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: Very toxic to aquatic life with long lasting effects.

Acute aquatic toxicity: (freshwater) Fish: 5 Species, aquatic invertebrates: 5 Species, algae: 1 Species.
  - Zn3(PO4)2,4H2O LC50 96h fish (calculated value) 0.39 mg/l.
  - Zn3(PO4)2,2H2O LC50 96h fish (calculated value) 0.36 mg/l.
  - Zn3(PO4)2,4H2O EC50 48h crustacea (calculated value) 0.32 mg/l,
  - Zn3(PO4)2,2H2O EC50 48h crustacea (calculated value) 0.32 mg/l.
  - Zn3(PO4)2,4H2O IC50 algae (calculated value) 0.32 mg/l.
  - Zn3(PO4)2,2H2O IC50 algae (calculated value) 0.29 mg/l

Chronic aquatic toxicity: NOEC chronic (freshwater) fish: 7 Species,
  - Zn3(PO4)2,4H2O NOEC chronic fish (calculated value) 0.10 mg/l.
  - Zn3(PO4)2,2H2O NOEC chronic fish (calculated value) 0.09 mg/l.
  - Zn3(PO4)2,4H2O NOEC chronic crustacea (calculated value) 0.09 mg/l.
  - Zn3(PO4)2,2H2O NOEC chronic crustacea (calculated value) 0.08 mg/l.
  - NOEC chronic (freshwater) algae: 2 Species,
    - Zn3(PO4)2,4H2O NOEC chronic algae (calculated value) 0.04 mg/l.
    - Zn3(PO4)2,2H2O NOEC chronic algae (calculated value) 0.04 mg/l.

NOEC (additional information). (marine water)
  - NOEC fish: 1 Species. Zinc = 0.025 mg Zn/l.
  - NOEC aquatic invertebrates: 26 Species, 0.005<Zn mg/l<0.9 26 Species.
  - NOEC aquatic algae 12 Species 0.0078<Zn mg/l<0.67

Not rapidly degradable

12.2. Persistence and degradability

12.3. Bioaccumulative potential
12.4. Mobility in soil

ZINC PHOSPHATE PZ20/PZW2

Ecology - soil

No additional information available.
. Soil. K Zn soil Partition coefficient Solid/Water (log K Zn value=2.2, 158.5 l/kg).
. PNEC add. sediment.
. PNEC add. =. Freshwater, marine water.

12.5. Results of PBT and vPvB assessment

<table>
<thead>
<tr>
<th>Component</th>
<th>Effect</th>
<th>PBT criteria</th>
<th>vPvB criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>trizinc bis(orthophosphate) (7779-90-0)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
<td></td>
</tr>
<tr>
<td>zinc oxide (1314-13-2)</td>
<td>This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII</td>
<td>This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII</td>
<td></td>
</tr>
</tbody>
</table>

12.6. Other adverse effects

Other adverse effects : None known.
Additional information : Do not discharge the product into the environment.
. M-Factor acute (CLP). M-Factor acute (GHS-UN)=1

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : USA. RCRA. Not applicable.
Waste treatment methods : Comply with local regulations for disposal. Dispose of this material and its container at hazardous or special waste collection point.
Sewage disposal recommendations : Hazardous waste. Cleaning residues containing this material may be classified hazardous waste.
Product/Packaging disposal recommendations : Hazardous waste. Dispose in a safe manner in accordance with local/national regulations. Dispose of materials or solid residues at an authorized site.
Ecology - waste materials : Do not discharge the product into the environment.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

<table>
<thead>
<tr>
<th>ADR</th>
<th>UN number</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1.</td>
<td>Un proper shipping name</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC PHOSPHATE)</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC PHOSPHATE)</td>
<td>Environmentally hazardous substance, solid, n.o.s. (ZINC PHOSPHATE)</td>
</tr>
<tr>
<td></td>
<td>UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC PHOSPHATE), 9, III, (-)</td>
<td>UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC PHOSPHATE), 9, III, MARINE POLLUTANT</td>
<td>UN 3077 Environmentally hazardous substance, solid, n.o.s. (ZINC PHOSPHATE), 9, III</td>
</tr>
<tr>
<td>14.2.</td>
<td>Transport hazard class(es)</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>14.4.</td>
<td>Packing group</td>
<td>III</td>
<td>III</td>
</tr>
<tr>
<td>14.5.</td>
<td>Environmental hazards</td>
<td>Dangerous for the environment : Yes</td>
<td>Dangerous for the environment : Yes</td>
</tr>
<tr>
<td></td>
<td>Marine pollutant : Yes</td>
<td>Marine pollutant : Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No supplementary information available</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14.6. Special precautions for user

- Overland transport
Classification code (ADR) : M7
Limited quantities (ADR) : 5kg
Mixed packing provisions (ADR) : MP10
ZINC PHOSPHATE PZ20/PZW2
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH)

Transport category (ADR) : 3
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13
Tunnel restriction code (ADR) : -
EAC code : 2Z

- Transport by sea
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-F
Stowage category (IMDG) : A
Stowage and handling (IMDG) : SW23

- Air transport
PCA Limited quantities (IATA) : Y956
PCA limited quantity max net quantity (IATA) : 30kg G
PCA packing instructions (IATA) : 956
PCA max net quantity (IATA) : 400kg
CAO packing instructions (IATA) : 956
CAO max net quantity (IATA) : 400kg

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
ZINC PHOSPHATE PZ20/PZW2 is not on the REACH Candidate List
ZINC PHOSPHATE PZ20/PZW2 is not on the REACH Annex XIV List

VOC content : Not applicable: solid mineral
Seveso Information : SEVESO Upper-tier >200 T, SEVESO LOW >100T

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
For this substance a chemical safety assessment has been carried out

SECTION 16: Other information

Other information:

- EU: RoHS "2" Directive 2015/863/EU. Meet the legal requirements. Contains lead less than 0.1%. Contains cadmium less than 0.01%. Recycling. end-of-life vehicles. Directive 2000/53/EC Modified. Meet the legal requirements.
- Germany: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1.
- Australia: Listed on the AICS (Australian Inventory of Chemical Substances).
- Canada: Listed on the Canadian DSL (Domestic Substances List).
- Korea: Listed on the Korean ECL (Existing Chemicals List). ECL/MOE Yes KE-34945.
- USA: Classification concerning the environment: not applicable.
- Classification and labelling (GHS-USA): Not classified.
- GHS-USA labelling: None.
- Hazard pictograms (GHS-USA): None.
- Signal word (GHS-USA): None.
- Hazard statements (GHS-USA): None.
- Registered in the TSCA inventory.
- CERCLA Toxicity 2 - Flammability 0 - Reactivity 0 - Persistence 3.
- NFPA ratings (scale 0-4): Health=0 - Fire=0 - Reactivity=0.
- HMIS: Hazard Rating: H=0 - F=0 - PH=0.
- RTECS no TD 0590000.
- Japan: Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory. 1-526.
- Malaysia: Malaysian Classified Chemical. EHSNR Yes.
- New Zealand: HSNO HSR003554. Listed on NZIoC (New Zealand Inventory of Chemicals).
- Philippines: Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances).
- People's Republic of China: Listed on IECSC.
- Taiwan: NECI Yes.
- Turkey: Listed on Turkish inventory of chemical.

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.