1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name : Zinc sulfate heptahydrate

Product Number : Z0251
Brand : Sigma

Company : Sigma-Aldrich Company Ltd.
The Old Brickyard
NEW ROAD, GILLINGHAM
Dorset
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UNITED KINGDOM

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Emergency Phone # : +44 (0)1747 833100
E-mail address : eurtechserv@sial.com

2. HAZARDS IDENTIFICATION

Risk advice to man and the environment
Harmful if swallowed. Risk of serious damage to eyes. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : ZnSO₄ · 7H₂O
Molecular Weight : 287.54 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Classification</th>
<th>Concentration</th>
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<td>231-793-3</td>
<td>030-006-00-9</td>
<td>Xn, N, R22 - R41 - R50/53</td>
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4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

**Further information**
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up**
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Handling**
Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

**Storage**
Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Handle with gloves.

**Eye protection**
Safety glasses

**Skin and body protection**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
Form crystalline
**Colour** white

**Safety data**

- **pH** 4.0 - 6.0 at 50 g/l at 20 °C
- **Melting point** > 500 °C
- **Boiling point** no data available
- **Flash point** not applicable
- **Ignition temperature** no data available
- **Lower explosion limit** no data available
- **Upper explosion limit** no data available
- **Density** 1.957 g/cm³ at 20 °C
- **Water solubility** 965 g/l at 20 °C

10. **STABILITY AND REACTIVITY**

**Storage stability**
Stable under recommended storage conditions.

**Materials to avoid**
Strong oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Zinc/zinc oxides, Sulphur oxides

11. **TOXICOLOGICAL INFORMATION**

**Acute toxicity**

- LD50 Oral - rat - 2,150 mg/kg
- LD50 Intraperitoneal - rat - 200 mg/kg

**Irritation and corrosion**

- Eyes - rabbit - Moderate eye irritation

**Sensitisation**
no data available

**Chronic exposure**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Signs and Symptoms of Exposure**
Zinc oxide dust or fume can irritate the respiratory tract. Prolonged skin contact can produce a severe dermatitis called oxide pox. Exposure to high levels of dust or fume can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin., burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, airway resistance, Cardiovascular effects., pulmonary edema, congestive heart failure

**Potential Health Effects**

- **Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.
- **Skin** May be harmful if absorbed through skin. May cause skin irritation.
- **Eyes** Causes serious eye irritation.
Ingestion  Harmful if swallowed.
Target Organs  Kidney, Pancreas, Liver, Lungs,

Additional Information
RTECS: ZH5300000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available

Ecotoxicity effects
Toxicity to fish  mortality LC50 - other fish - 1 - 10 mg/l - 96 h

Further information on ecology
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

ADR/RID
UN-Number: 3077  Class: 9  Packing group: III
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulfate heptahydrate)

IMDG
UN-Number: 3077  Class: 9  Packing group: III  EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc sulfate heptahydrate)
Marine pollutant: No

IATA
UN-Number: 3077  Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substance, solid n.o.s. (Zinc sulfate heptahydrate)

15. REGULATORY INFORMATION

Labelling according to EC Directives

EC Label
Hazard symbols
Xn  Harmful
N  Dangerous for the environment

R-phrase(s)
R22  Harmful if swallowed.
R41  Risk of serious damage to eyes.
R50/53  Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)
S22  Do not breathe dust.
S26  In case of contact with eyes, rinse immediately with plenty of water and seek medical
advice.
S39  Wear eye/face protection.
S46  If swallowed, seek medical advice immediately and show this container or label.
S60  This material and its container must be disposed of as hazardous waste.
S61  Avoid release to the environment. Refer to special instructions/ Safety data sheets.

16. OTHER INFORMATION

Further information
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