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Material Safety Data Sheet

Zinc Sulfate Heptahydrate

1. Product Identification

Synonyms: Sulfuric acid, zinc salt (1:1) heptahydrate; Zinc vitriol, heptahydrate; Zinc sulfate, heptahydrate

CAS No.: 7446-20-0

Molecular Weight: 287.54

Chemical Formula: $ZnSO_4 \cdot 7H_2O$

Manufacturer: Xiangtan Fenghe Biotechnology Co.,Ltd

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2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent | Hazardous |
|--------------|-----------|---------|-----------|
| ----- | ----- | ----- | ----- |
| Zinc Sulfate | 7446-02-0 | 98% | yes |

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT.

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 2 - Moderate

Lab Protective Equip: GOGGLES; LAB COAT

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

Ingestion:

As with other soluble zinc salts, zinc sulfate may hydrolyze into acid if swallowed. Severe irritation and burns of the mouth, throat and digestive system may occur. Symptoms may include vomiting, stomach pain, increased pulse rate without blood pressure decrease, blood pressure decrease, acute pulmonay edema (fluid in the

lungs), diarrhea, kidney damage, other gastrointestinal disturbances and hemorrhagic pancreatitis. A fatality following ingestion of 10 grams has been reported.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain.

Eye Contact:

Irritant, can cause pain and redness, possible mechanical harm. May cause severe irritation.

Chronic Exposure:

Chronic exposure may cause fatigue, slow tendon reflexes, intestinal inflammation (with bleeding), diarrhea, blood effects, central nervous system depression, tremors and paralysis of the extremities. Repeated skin or eye contact can cause skin and eye effects.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

If swallowed, give several glasses of water to drink. Vomiting may occur

spontaneously, but DO NOT INDUCE! Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Sealed containers may rupture when heated.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Use water carefully as material will react with water to form acidic solution. Water spray may be used to keep fire exposed containers cool.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section

8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Material dissolves in water to form an acidic solution.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Material dissolves in water to form an acidic solution. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators:

For conditions of use where exposure to the dust or mist is apparent, a half-face dust/mist respirator may be worn. For emergencies or instances where the exposure

levels are not known, use a full-face positive-pressure, air-supplied respirator.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible.

Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Colorless crystals or granules.

Odor: Odorless.

Solubility: Soluble in water.

Specific Gravity: 1.97

pH: ca. 4.5 Aqueous solution

% Volatiles by volume @ 21C (70F): 0

Boiling Point: > 500C (> 932F) Decomposes.

Melting Point: 100C (212F) Loses all water at 280C.

Vapor Density (Air=1):No information found.

Vapor Pressure (mm Hg): No information found.

Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Oxides of sulfur and oxides of zinc. Reacts with water to form sulfuric acid.

Hazardous Polymerization: Will not occur.

Incompatibilities:

Lead, calcium, strontium salts, borax, alkali carbonates and hydroxides, silver protein and tannins.

Conditions to Avoid:

Heat, moisture, incompatibles.

11. Toxicological Information

Hydrate: Oral rat LD50: 2150 mg/kg. Investigated as a mutagen.

For anhydrous zinc sulfate: oral rat LD50: 1710 mg/kg; Irritation, rabbit eye, standard

Draize: 420 ug, moderate. Investigated as a tumorigen, mutagen, reproductive effector.

-----\Cancer Lists\-----

---NTP Carcinogen---

| Ingredient | Known | Anticipated | IARC Category |
|------------|-------|-------------|---------------|
| ----- | ----- | ----- | ----- |

Zinc Sulfate

No

No

None

12. Ecological Information

Environmental Fate: No information found.

Environmental Toxicity:

The LC50/96-hour values for fish are between 1 and 10 mg/l. This material is expected to be toxic to aquatic life.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

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