


1. CHEMICAL PRODUCT – COMPANY IDENTIFICATION.

| | |
|-------------------------|--|
| GHS Product name: | Zinc Sulphate Monohydrate. |
| Common / Trade names: | Zinc Sulphate Monohydrate. Zinc Sulphate Maximum 360 / 361 / 362 / 363 / 365 |
| Application: | Fertilizers, intermediates, laboratory chemicals, processing aid not otherwise listed, pharmaceutical substance, surface active agents, lubricants and lubricant additives, fillers, some grades of this substance are available for food/feedstuff additives, |
| Company Identification: | Zinc Nacional, S.A. Serafin Peña 938 Sur. Monterrey N.L. México. C.P. 64000 Phone: +52 (81) 8345-4078 Fax +52 (81) 8344-3446. |
| Emergency telephone: | Business Hours: +52 (81) 8345-4078. 24 Hours: +52 (81) 8376-5730. |

2. HAZARDS IDENTIFICATION.

- **Classification of the substance:** GHS Classification.
Acute aquatic toxicity (Category 1) H400; Chronic aquatic toxicity (Category 1) H410
Acute Tox. 4, H302; Eye Damage 1, H318

- **GHS label elements:**

| Pictogram | Signal Word | Hazard Statements | Precautionary Statements |
|---|-------------|------------------------------|-----------------------------|
|  | Danger | H302 H318 H400 H410 | P273 P301 + P312 P351 |

* For the full meaning of the phrases H and P: see section 16

3. COMPOSITION AND INFORMATION ON INGREDIENTS.

| Component | CE N° | CAS N° | % (w/w) |
|----------------------------------|-----------|-----------|---------|
| Zinc Sulphate, ZnSO ₄ | 231-793-3 | 7446-19-7 | 97.4 |

4. FIRST-AID MEASURES.
Description of first aid measures.

- **Ingestion:** Have victim rinse mouth thoroughly with water. "Do not induce vomiting". Immediately give large amounts of water. If vomiting occurs, rinse mouth and repeat administration of water. Obtain medical advice. Never give anything by mouth to an unconscious or convulsing person.
- **Inhalation:** If symptoms are experienced, remove source of contamination or move victim to fresh air. In case of breathing difficulties administer oxygen. If symptoms persist, obtain medical advice immediately.
- **Contact with eyes:** In case of eye contact, keep eyelid open and flush with plenty of water for 15 minutes. If irritation should persist subsequently consult an ophthalmologist. Protect the eye that is not injured.
- **Contact with skin:** After contact with skin, wash immediately with: Water. Subsequently wash again with: Water and soap. Take off immediately all contaminated clothing. If irritation persists, seek medical attention.

5. FIRE-FIGHTING MEASURE

- **Suitable extinguishing media:** Water sprays jet, water mist, foam and carbon dioxide (CO₂).
- **Unsuitable extinguishing media:** Full water jet.
- **Special hazards.** In case of fire may be liberated sulphur dioxide (SO₂) and Sulphur trioxide (SO₃).
- **Combustion decomposition products:** Sulphur dioxide (SO₂) and sulphur trioxide (SO₃) are generated.
- **Advice for firefighters:** Heating of container(s) will cause pressure rise with risk of bursting and subsequent explosion gives of toxic and irritant fumes when heated or burning. The vapor may be invisible and is heavier than air. It spreads along the ground and may enter sewers and basements. Keep container(s) cool with water. Extinguish with water fog (spray). Do not use water jet to extinguish. Use water spray to knock down fire fumes if possible. Avoid unnecessary run-off of extinguishing media which may cause pollution.
- **Personal protective equipment:** Wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES.

- **Personal precautions:** Use personal protective equipment (see section 8).
- **Environmental precautions:** Stop leaks if possible. Contain spillage by any means available. Cover drains. Do not allow to enter into soil/subsoil. Do not empty into drains or the aquatic environment.
- **Methods and material for containment and cleaning up:** Sweep spilled substance into containers. Carefully collect remainder, and then remove to safe place. Dispose according to regulations (see section 13).

7. HANDLING AND STORAGE.

- **Precautions for safe handling.**
 - Avoid spilling, skin and eye contact.
 - Use mechanical ventilation in case of handling which causes formation of dust.
 - Avoid inhalation of dust.
- **Conditions for safe storage, including any incompatibilities:**
 - Keep in the original container.
 - Keep in a fresh, dry and vented place.
 - Store away of strong acids or alkaline substances.
 - Store away of oxidizing or reducing materials.
 - Keep the container free of leaks.
 - Store away from hot surfaces and risk flame places.

8. EXPOSURE CONTROL / PERSONAL PROTECTION.

- **Exposure limits.**

| Component | Mexico | USA | Europe |
|---------------|---|--|--|
| Zinc Sulphate | NOM-010-STPS (Mexico, 4/2014). LMPE-PPT: 10 mg/m ³ 8 hours (powder). LMPE-CT: 10 mg/m ³ 15 min (smoke). LMPE-PPT: 2 mg/m ³ 8 hours (smoke). | OSHA PEL (2/2013). TWA: 5 mg/m ³ 8 hours (Respirable fraction). TWA: 15 mg/m ³ 8 hours (Total dust). | TWA 10 mg / m ³ 8 hours (Total dust). TWA 4 mg / m ³ 8 hours (Respirable fraction). |

- **Exposure Controls:** Local and general ventilation, to ensure that concentration does not exceed the limits for occupational exposure. Consider enclosing the process. Ensuring control of process conditions. Replacement air supply to supply air continuously removed. Provide showers and eyewash stations.

- **Individual protection**



Eye Protection: Safety goggles are recommended.



Hand protection: Natural rubber gloves are recommended. Wash hands and face before eating, drinking or smoking.



Respiratory Equipment: P2 filter respirator for inert particles. Use NIOSH approved particulate respirator if dust generation occurs.



Other protection: Wear appropriate clothing to prevent reasonably probable skin contact. Chemical resistant safety shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES.

- **Appearance:** Solid powder or granule.
- **Color:** White.
- **Odor:** Odorless.
- **Molecular weight (g./mol):** 179.47
- **Relative density (g./cm³):** 3.35 20°C
- **Melting point:** 100°C (212°F).
- **Boiling point:** 500°C (932 °F).
- **Ph:** 4.5 – 5.5.
- **Solubility in water:** 45 g. of Zinc Sulfate in 100 g. (100 ml) of water at 78°F
- **Flash Point:** Not applicable.

10. STABILITY AND REACTIVITY.

Reactivity: Stable.

Chemical stability: Stable under ordinary conditions and storage.

Possibility of hazardous reactions: Reacts with peroxides and other radical forming substances.

Conditions to avoid: High temperatures and moisture.

Incompatible materials: Oxidizers (strong). Acids.

Hazardous decomposition products: In case of fire, sulfur oxides (S_{ox}) are produced.

11. TOXICOLOGICAL INFORMATION.

Information on toxicological effects.

- **Acute toxicity.**
Oral: LD50 = 564 to 2949 mg/kg bw. (Rat).
Dermal: LD50 > 2000 mg/kg bw. (Rat).
- **Serious eye damage/irritation.**
Strong irritant
- **STOT-single exposure.**
Not toxic.
- **Reproductive toxicity.**
Not toxic for reproduction.
- **STOT-repeated exposure.**
Not toxic.
- **Skin corrosion/irritation.**
Not irritant.
- **Respiratory or skin sensitization.**
No sensitizing.
- **Aspiration hazard.**
Not available.
- **Carcinogenicity.**
Not carcinogen.
- **Germ cell mutagenicity.**
Not mutagenic.

12. ECOLOGICAL INFORMATION.

Toxicity.

- **Ecotoxicity.**
Aquatic invertebrates. For pH <7: 1.13 mg Zn/l (based on 48 h. Ceriodaphnia dubia test)
Algae. For pH >7-8.5: 3.73 mg Zn/l (based on 72 h. Selenastrum capricornutum test)
- **Bioaccumulation.**
Not available.
- **Mobility in soil.**
Not available.
- **Results of PBT and mPmB.**
Not available.
- **Persistence / degradability.**
Not available.
- **Other adverse effects.**
Not available.

13. DISPOSAL INFORMATION.

Waste treatment methods.

SUBSTANCE DISPOSAL: Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible.

CONTAINER DISPOSAL: Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods.

14. TRANSPORT INFORMATION.

- **Latin America**

This material is not regulated.

- **USA**

No DOT regulated in domestic (USA ground) transportation in package sizes less than 1000 lbs (454 kg). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. IMDG Regulated Marine Pollutant.

DOT

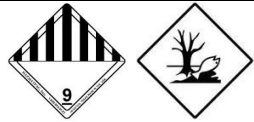
Basic shipping requirements:

UN number: UN 3077
 Proper shipping name: Environmentally Hazardous Substance, Solid, N.O.S. (Zinc Sulphate Monohydrate RQ = 1000lbs.)
 Hazard class: 9
 Packing group: III
 Special precautions: Read safety instructions, SDS and emergency procedures before handling.

Additional Information:

Special provisions: 8, 146, 335, A112, B54, IB8, IP3, N20; T1, TP33
 Packaging exceptions: 155
 Packaging non bulk: 213
 Packaging bulk: 240
 Reportable quantity: 1000

- **European Union:**

| Type of transport | Classification | UN Number | Proper shipping name | Class | Group Packing | Label |
|---------------------------|----------------|-----------|--|-------|---------------|---|
| Land: Road Railroad | ADR RID | UN 3077 | Environmentally Hazardous Substance, Solid, N.O.S. (Zinc Sulphate Monohydrate) | 9 | III |  |
| Sea | IMO / IMDG | | | | | |
| Air | IATA / DGR | | | | | |

15. REGULATORY INFORMATION.

- **Mexico.**

This material is not regulated.

- **USA**

SARA 302: RQ=None, TPQ=None.
SARA 311/312: Yes (Acute).
SARA 313: Zn and Pb Compounds.
RCRA 261: No
TSCA: No.

TSCA 8(d): No
TSCA 12 (b): No
Prop. 65: Yes (Pb, Cd).
CDTA: No

Florida: Yes
Pennsylvania: Yes
Minnesota: No
Massachusetts: Yes
New Jersey: Yes
California: Yes

- **Canada:**

Clasificación WHMIS: Not controlled
Lista de Sustancias Domesticas (DSL): No

- **Unión Europea:**

EINECS: No.
ELINCS: No.
REACH: Yes (01-2119474684-27-0023).

16. OTHER INFORMATION.

Hazard statements

H302: Harmful if swallowed.
 H318: Causes serious eye damage.
 H400: Very toxic to aquatic life
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary statements

P351: Rinse cautiously with water for several minutes.
 P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P273: Avoid release to the environment.

- **Hazardous Materials Identification System, (HMIS)**

Health: 2 Fire: 0 Reactivity: 0 Personal Protection: E
 Personal Protection: E (recommended only for bulk powder) = Gloves + Mask + Glasses

Definitions Classifications.

0 = Minimum 1 = Slight 2 = Moderate 3 = Serious 4 = Severe