1. CHEMICAL PRODUCT – COMPANY IDENTIFICATION.

GHS Product Name: Zinc Sulphate Monohydrate.

Common / Trade Names: Zinc Sulphate Monohydrate.
Zinc Sulphate Maximum 360 / 360 D / 361 / 362 / 363 / 365 / 365 D

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.
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2. HAZARDS IDENTIFICATION.

- **Classification of the substance: GHS Classification.**
  Acute Toxicity (oral) Category 4, H302; Eye Damage Category 1, H318; Acute Aquatic Toxicity Category 1 H400; Chronic Aquatic Toxicity Category 1 H410.
- **GHS label elements:**

Pictogram	Signal Word	Hazard Statements	Precautionary Statements
	Danger	H302 H318 H410	P273 P280 P305+P351+P338 P310 P391 P501

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

- **Hazards not otherwise classified:** None Know.
- **Results of PBT and vPvB assessments:** Not applicable as this is an inorganic substance.
- **Determination of endocrine-disrupting properties:** None of the components are listed.

3. COMPOSITION AND INFORMATION ON INGREDIENTS.

Component	Formula	CAS No.	EC No.	% (p/p)
Zinc Sulfate Monohydrate	ZnSO4	7446-19-7	231-793-3	97.4

4. FIRST-AID MEASURES.

- **Description of first aid measures.**
  - **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.
  - **Ingestion:** Have victim rinsing 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.
  - **Skin contact:** 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.
  - **Eye contact:** 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.
- **Most important symptoms and effects, both acute and delayed.**
  - **Inhalation:** May cause irritation to the respiratory tract.
  - **Ingestion:** Harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
  - **Skin contact:** May cause skin irritation. Repeated exposure may cause skin dryness or cracking.
  - **Eye contact:** Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking, and tear production, with marked redness and swelling of the conjunctiva. May cause burns.
- **Indicate any medical attention and special treatment that should be provided immediately.**
  No action should be taken that involves personal risk or without adequate training. Avoid direct mouth-to-mouth resuscitation, as it can be dangerous for the person providing the aid. Use other methods for resuscitation, preferably oxygen or compressed air equipment.

5. FIRE-FIGHTING MEASURES.

- **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 containers (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 jets to extinguish. Use water spray to knock down fire fumes if possible. Avoid unnecessary run-off of extinguishing media which may cause pollution.
- **Protection during firefighting:** Wear full firefighting turn-out gear and respiratory protection.

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 it to enter 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 the remainder and then remove it to a 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 incompatibility:**
  - Keep it in the original container.
  - Keep in a fresh, dry, and vented place.
  - Store away strong acids or alkaline substances.
  - Store away oxidizing or reducing materials.
  - Keep the container free of leaks.
  - Store away from hot surfaces and risk flame places.
- **Specific end uses.**
  Only as contemplated in Recommended Uses or Applications (see section 1)

8. EXPOSURE CONTROL / PERSONAL PROTECTION.

- **Exposure limits values.**

Component	Mexico	USA	Europe
Zinc Sulfate Monohydrate	NOM-010-STPS (Mexico, 4/2014). LMPE-PPT: 10 mg/m³ 8 hours (powder). LMPE-CT: 10 mg/m³ 15 min (smoke). LMPE-PPT: 2 mg/m³ 8 hours (smoke).	OSHA PEL (2/2013). TWA: 5 mg/m³ 8 hours (Respirable fraction). TWA: 15 mg/m³ 8 hours (Total dust).	(WELS) / EH40 TWA 10 mg / m³ 8 hours (Total dust). TWA 4 mg / m³ 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.
- **Personal 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 (gr/mol):** 179.47
- **Melting point:** Not applicable.
- **Vapor pressure (20 °C):** Not applicable
- **Decomposition point:** 500ºC (932 ºF)
- **Relative density (g./cm3):** 3.35
- **Ph:** 4.5 – 6.5
- **Solubility in water:** 45 g. of Zinc Sulfate in 100 g. (100 ml) of water at
- **Flash Point:** Not applicable.
- **Upper/lower explosive limits:** Non-explosive

10. STABILITY AND REACTIVITY.

- **Reactivity:** No dangerous reactions known under normal conditions of use.
- **Chemical stability:** Stable under normal conditions.
- **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 (Sox) are produced.

11. TOXICOLOGICAL INFORMATION.

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

12. ECOLOGICAL INFORMATION.

- **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)
- **Results of PBT and mPmB.**
  Not available.
- **Bioaccumulation.**
  Not available
- **Persistence / degradability.**
  Not available.
- **Mobility in soil.**
  Not available.
- **Other adverse effects.**
  Not available.

13. DISPOSAL INFORMATION.

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.

- **América:** Not regulated.
- **EE. UU.**
  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.
- **EE. UU:**
  SARA 302: RQ=None, TPQ=None
  SARA 311/312: Yes (Acute).
  SARA 313: Zn and Pb Compounds.
  RCRA 261: No
  Prop. 65: No (Impurities Pb & Cd listed).
  CDTA: No
  Florida: Yes
  Pennsylvania: Yes
  Minnesota: No
  Massachusetts: Yes
  Nueva Jersey: Yes
  California: Yes
- **Europe REACH:** Registration Number 01-2119474684-27-0023.
- **Inventory / Lists:**
  - EE. UU: TSCA: No TSCA 8(d): No TSCA 12 (b): No
  - Canada: Domestic Substances List (DSL): No, not listed Classification WHMIS: No, not listed.
  - Europe: EINECS: No. ELINCS: No.

16. OTHER INFORMATION.

- **GHS Definitions**
  - **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**
    P273: Avoid release to the environment
    P280: Wear protective gloves/protective clothing/eye protection/face protection
    P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
    P310: Immediately call a POISON CENTER or doctor/physician
    P391: Collect spillage
    P501: Dispose of contents/container to accordance with local regulations

This information relates to the specific product designated and may not be valid for such a product used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may arise from the use of this information, nor do we offer a warranty against patent infringement. Customers are responsible for compliance with local, state, and federal regulations that may be pertinent in the storage, application, and disposal of this product.