

# MATERIAL SAFETY DATA SHEET

Zinc Sulfate Monohydrate

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## Section 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

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**MANUFACTURED FOR:**

Mar Vista Resources  
745 North Ave  
Corcoran, Ca 93212

**EMERGENCY TELEPHONE NO.:**

DAYS: (559) 992-4535  
24 Hour Emergency HAZMAT Response: (800) 424-9300  
EPA National Response Center: (800) 424-9300

**PRODUCT NAME:** Zinc Sulfate Monohydrate  
**PRODUCT SYNONYMS:** Zinc Sulfate, Zinc Sulfate Monohydrate  
**CHEMICAL NAME/CLASS:** Inorganic Salt  
**PRODUCT USE:** Various Industrial and Agricultural Applications

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## Section 2 - -COMPOSITION/INFORMATION ON INGREDIENTS

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INGREDIENT NAME	CAS REGISTRY NUMBER	TYPICAL WT %
Zinc Sulfate Monohydrate	7446-19-7	99%
Water	7732-18-5	<1%

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## Section 3 – HAZARDS IDENTIFICATION

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### EMERGENCY OVERVIEW

**APPEARANCE:** White, free-flowing granules  
**ODOR:** Essentially Odorless

**PHYSICAL FORM:** Dry  
**SIGNAL WORD:** None

**EMERGENCY OVERVIEW:** Colorless, odorless granules. Not flammable or explosive, but will decompose in extreme heat to produce toxic sulfur oxide gas and zinc oxide fume. The granular solid or dust is relatively non-toxic to humans and poses little immediate hazard to emergency response personnel but is freely soluble in water and can pose a threat to watercourses.

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The primary routes of overexposure for this material are via inhalation and contact with skin and eyes. The following paragraphs describe the symptoms of overexposure to this material.

**INHALATION:** If dust, mists, or sprays of this product are inhaled, they may irritate the nose, throat, and lungs. Symptoms may include the following: sneezing, coughing, and difficulty breathing. Severe overexposures can result in damage to respiratory system tissues. Most symptoms generally are alleviated when the overexposure ends.

**CONTACT WITH SKIN or EYES:** Depending on the duration of skin contact, skin overexposures can cause reddening, discomfort, and moderate irritation, but would not normally cause tissue damage. Eye contact may cause irritation, possibly severe.

**SKIN ABSORPTION:** Skin absorption is not a significant route of overexposure for Zinc Sulfate Monohydrate.

**INGESTION:** In general, zinc sulfate is very astringent, and when ingested in large quantities, symptoms of over-exposure can include nausea, abdominal pain, vomiting, and diarrhea. Severe ingestion overexposures can result in convulsions and collapse.

**ACUTE:** The primary hazard associated with this product is the potential for moderate irritation of skin, eyes, and other contaminated tissue. Ingestion of this product can be harmful or fatal.

**CHRONIC:** In general, zinc is considered to be a low toxicity metal. Zinc is very important trace element for humans and the body regulates the amount of zinc stored by decreasing absorption and increasing excretion when intake is increased. Industrial experience has not identified any significant chronic effects from zinc sulfate to date. Zinc sulfate is not listed as a carcinogen by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), the American Conference of Governmental Industrial Hygienists (ACGIH), or the European Union (EU).

HEALTH: 1      REACTIVITY: 0      FLAMMABILITY: 0      ENVIRONMENT: 0

(0=Insignificant    1=Slight    2=Moderate    3=High    4=Extreme)

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## Section 4 – FIRST AID MEASURES

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Contaminated individuals must be taken for medical attention if any adverse reaction occurs. Rescuers should be taken for medical attention, if necessary. Take a copy of MSDS to health professional with contaminated individual.

**SKIN EXPOSURE:** Remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts, etc). Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with lukewarm gently flowing water and non-abrasive soap for 5 minutes. If irritation persists, repeat flushing. Obtain medical advice. Completely decontaminate clothing, shoes and leather goods before reuse or else discard.

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**EYE EXPOSURE:** Do not allow victim to rub eye(s). Let the eye(s) water naturally for a few minutes. If particle or dust does not dislodge, flush with lukewarm water for 5 minutes or until particle/dust is removed, while holding eyelid(s) open. If irritation persists, repeat flushing. Obtain medical attention. DO NOT attempt to manually remove anything stuck to the eye.

**INHALATION:** If dust or mists of this product are inhaled, remove source of contamination or move contaminated individual to fresh air. If necessary, obtain medical attention.

**INGESTION:** Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 2 – 8oz (60-240 ml) of water. Zinc Sulfate is an emetic and may cause vomiting. If vomiting occurs naturally, have victim rinse mouth with water again. Obtain medical attention and bring this MSDS. Never induce vomiting or give diluents (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

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### Section 5 – FIRE FIGHTING MEASURES

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**FLASH POINT:** Not Applicable.

**AUTOIGNITION TEMPERATURE:** Not Applicable.

**FLAMMABLE LIMITS (in air by volume, %):** Lower (LEL): Not applicable.  
Upper (UEL): Not applicable.

**FIRE EXTINGUISHING MATERIALS:** Carbon Dioxide: YES                      Foam: YES  
Dry Chemical: YES

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This product is a moderate irritant and presents a potential contact hazard to firefighters. When involved in a fire, this material may decompose and produce toxic fumes of sulfur dioxide. Move product from fire area if you can without risk. Do not use water directly on material. Avoid breathing vapors, keep upwind.

**SPECIAL FIRE-FIGHTING PROCEDURES:** Incipient fire responders should wear eye protection. Structural fire fighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Move containers from fire area if they have not been exposed to heat and if it can be done without risk to personnel. If this product is involved in a fire, fire run-off water should be contained to prevent possible environmental damage. Rinse all contaminated equipment thoroughly with water before returning to service.

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### Section 6 – ACCIDENTAL RELEASE MEASURES

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**IN CASE OF SPILL OR LEAK:** Stop the leak, if possible. Ventilate the space involved. Contain, vacuum up, place in non-sparking containers for disposal. Prevent waterway contamination. Construct a dike to prevent spreading. Collect run-off and transfer to drums or tanks for later disposal. Consult with regulatory specialists to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

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### Section 7 – HANDLING AND STORAGE

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**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product on you or in you. Wash hands after handling this product. Do not eat, drink, smoke or apply cosmetics while handling this product. All work practices should minimize the generation of spills, splashes and aerosols. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Avoid breathing dust or mists generated by this product. Use in a well-ventilated location. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual granular particles or dusts, therefore, empty containers should be handled with care. Store containers in a cool, dry location, away from direct sunlight, or sources of intense heat. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

**PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:** Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely, if necessary. Collect all spills, dust residues, rinsates and dispose of according to applicable U.S. Federal, State, or local procedures, or the applicable Canadian standards.

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### Section 8 – EXPOSURE CONTROL, PERSONAL PROTECTION

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**VENTILATION AND ENGINEERING CONTROLS:** Use adequate local or general ventilation where necessary to maintain the concentrations of zinc sulfate dust well below the recommended occupational exposure limits for general Particulates, Not Otherwise Specified (PNOS).

**RESPIRATORY PROTECTION:** Where dust or fumes are generated and cannot be controlled to within acceptable levels by engineering means, use appropriate NIOSH approved respiratory protection equipment (a 42CFR84 Class N, R or P-95 particulate filter cartridge).

**EYE PROTECTION:** Wear safety glasses or splash goggles to prevent contact with this product. As a general rule, do not wear contact lenses when handling.

**HAND PROTECTION:** Wear appropriate gloves for routine handling of the material to prevent contact.

**BODY PROTECTION:** The hazard potential of this material is low. Where there is large scale use of this material and significant potential for worker contact, gloves and long sleeved work clothes or disposable coveralls may be necessary. Use body protection appropriate for task.

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**Section 9 – PHYSICAL AND CHEMICAL PROPERTIES**

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**VAPOR DENSITY:** Not Applicable.  
**SPECIFIC GRAVITY:** 3.28  
**SOLUBILITY IN WATER:** 30% at 70° F  
**VAPOR PRESSURE:** Not applicable.  
**ODOR THRESHOLD:** Not applicable.

**EVAPORATION RATE (n-BuAc = 1):** Not Applicable.  
**FREEZING POINT or RANGE:** Not Available  
**BOILING POINT:** Not Available  
**pH @ 15°C (59°F):** 5.0 @ 10% Solution  
**LOG WATER/OIL DISTRIBUTION COEFFICIENT:** Not available

**APPEARANCE AND COLOR:** This product is a white, free flowing granular material.  
**HOW TO DETECT THIS SUBSTANCE (warning properties):** There are no distinguishing characteristics of this product.

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**Section 10 – STABILITY AND REACTIVITY**

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**STABILITY:** Stable.  
**DECOMPOSITION PRODUCTS:** Thermal decomposition products may include toxic and hazardous oxides of zinc and sulfur.  
**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Contact with oxidizers may result in fire or explosion hazard.  
**HAZARDOUS POLYMERIZATION:** Will not occur.  
**CONDITIONS TO AVOID:** Extreme heat and contact with oxidizers.

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**Section 11 – TOXICOLOGICAL INFORMATION**

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**GENERAL:** In the form in which this product is being sold, it is relatively non-toxic. The major route of exposure would be through the generation and inhalation of airborne dust and especially the generation of zinc oxide fume through thermal decomposition. See SECTION 3 – HAZARDS IDENTIFICATION in the MSDS for additional information on Health Effects.

**SUSPECTED CANCER AGENT:** The components of this product are not found on the following lists: U.S. FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer causing agents by these agencies.

**IRRITANCY OF PRODUCT:** This product is moderately irritating to contaminated tissue.

**SENSITIZATION OF PRODUCT:** This product contains no known skin or respiratory sensitizers.

**ACGIH BIOLOGICAL EXPOSURE INDICES:** Currently, there are no ACGIH Biological Exposure Indices (BEIs) determined for the components of this product.

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**Section 12 – ECOLOGICAL INFORMATION**

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**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION**

This product has high water solubility and its zinc contents are directly bio-available. The zinc in particular may be toxic to aquatic organisms, especially fish, with water hardness, pH and dissolved organic carbon levels being regulating factors. In terrestrial systems, the mobility of zinc in the soil and their degree of bioaccumulation in organisms is dependent on soil chemical conditions.

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**Section 13 – DISPOSAL CONSIDERATIONS**

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Consult with environmental engineer or professional to determine if neutralization is appropriate and for handling procedures for residual material. Note: Chemical additions to, processing of; or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulation.

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**Section 14 – TRANSPORT INFORMATION**

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**THE INFORMATION BELOW IS FOR SHIPMENTS EXCEEDING 1,000 POUNDS IN A SINGLE PACKAGE, CONTAINER, TRUCK, OR RAILCAR. THIS PRODUCT IS NOT REGULATED IN SURFACE TRANSPORTATION IN NON-BULK QUANTITIES.**

<b>DOT PROPER SHIPPING NAME:</b>	Environmentally hazardous substances, solid, n.o.s. (Zinc Sulfate Monohydrate), class 9, UN 3077 PG III, RQ 1000 lbs
<b>DOT HAZARD CLASS:</b>	9
<b>DOT IDENTIFICATION NUMBER:</b>	UN 3077
<b>DOT PACKING GROUP:</b>	III
<b>DOT REPORTABLE QUANTITIES:</b>	1000 pounds/454 Kg
<b>DOT LABELLING REQUIREMENTS:</b>	Class 9
<b>MARINE POLLUTANT (US):</b>	No

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**Section 15 – REGULATORY INFORMATION**

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**UNITED STATES:**

INGREDIENTS LISTED ON TSCA INVENTORY.....YES  
HAZARDOUS UNDER HAZARD COMMUNICATION STANDARD.....NO  
U.S. CERCLA REPORTABLE QUANTITY (RQ).....1000 POUNDS  
EPCRA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCE.....NO INGREDIENTS QUALIFY  
EPCRA SECTION 311/312 HAZARDS CATEGORIES.....NONE  
EPCRA SECTION 313 TOXIC RELEASE INVENTORY.....ZINC COMPOUNDS (99%)

**CANADIAN:**

INGREDIENTS LISTED ON DSL.....YES  
WHMIS CLASSIFICATION.....NOT A CONTROLLED PRODUCT

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** No

All information contained in this Material Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Material Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee is expressed or implied as to the results to be obtained based upon your use of the information.