



Material Safety Data Sheet

This MSDS complies with the style format specified by ANSI Z400.1 - 1993

SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION

TETRA Micronutrients (281) 419-9430
25025 I-45 North, Suite 377 (800) 544-3155
The Woodlands, Texas 77380

(800) 424-9300 - CHEMTREC (24 Hour Emergency Response)

PRODUCT: Zink-Gro® Maxi-Granular
TRADE NAMES: Zink-Gro®, Zink-Gro® AS
SYNONYMS: Zinc Sulfate Monohydrate
CHEMICAL FAMILY: Inorganic Salt
MSDS CREATION DATE: 25 AUG 93
MSDS REVISION DATE: 01 MAY 03

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENTS: Zinc Sulfate Monohydrate
FORMULA: $ZnSO_4 \cdot H_2O$
CAS NUMBER: 7446-19-7 (Zinc Sulfate Monohydrate)
PERCENTAGE: 99% Zinc Sulfate Monohydrate
≤1% Water
PERMISSIBLE EXPOSURE LIMITS (OSHA/ACGIH/OTHER): Not established
PROBABLE CONTAMINANT: None

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=3, FIRE=0, REACTIVITY=0

EMERGENCY OVERVIEW: White, free-flowing granules. Avoid contact with eyes and/or skin. May cause respiratory tract, skin and eye irritation, possibly severe. Wash thoroughly after handling. Work in well ventilated area.

POTENTIAL HEALTH EFFECTS:

INHALATION:

May cause irritation of the nasal membranes and upper respiratory tract, possibly severe. Additional effects may include difficulty breathing, low blood pressure, dizziness, bluish skin color and lung congestion.

SKIN CONTACT:

May cause irritation, possibly severe.

EYE CONTACT:

Contact may cause irritation, possibly severe.

INGESTION:

May cause burns. Additional effects may include fever, nausea, vomiting, diarrhea, stomach pain, blood in the stool, inability to urinate, low blood pressure, kidney damage, liver damage and convulsions.

SECTION 4: FIRST AID MEASURES



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INHALATION: Remove from exposure area to fresh air immediately. Get medical attention if needed.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water. Get medical attention if needed.

EYE CONTACT: Flush eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of product remains (approximately 15-20 minutes). Cover with sterile bandages. Get medical attention immediately.

INGESTION: Dilute the product immediately with large amounts of water or milk. Get medical attention immediately.

NOTE TO PHYSICIAN: Antidote: The antidote, for poisoning from zinc salts is recommended in Dreisbach, Handbook of Poisoning, 12th Edition. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD: Negligible fire and explosion hazard in dust form when exposed to heat or flame.

EXTINGUISHING MEDIA: Use any standard agent suitable for surrounding structural fire or for other chemicals that may be involved.

FIREFIGHTING: Move product from fire area if you can without risk. Do not use water directly on material. Avoid breathing vapors; keep upwind. Dike area to prevent runoff and contamination of water sources.

HAZARDOUS COMBUSTION PRODUCTS: May include toxic and hazardous oxides of zinc and sulfur.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL: Pick-up dry spills by scooping, shoveling or vacuuming and place into containers for reuse or disposal. Wear respirator, protective clothing and gloves. Keep unnecessary people away. Isolate hazard area and deny entry to avoid material dispersal. Wash thoroughly after handling. Use with adequate ventilation.

SECTION 7: HANDLING AND STORAGE

Store in a cool, dry place. Protect from exposure to fire. Avoid contact with skin and eyes. Do not breath product dusts. Wash thoroughly after handling.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS: No occupational exposure limits established by OSHA/ACGIH/NIOSH.

VENTILATION: Provide local exhaust or process enclosure ventilation.

EYE PROTECTION: Wear safety glasses with splash shields or safety goggles/shield to prevent contact with this product.

EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product, the employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

CLOTHING: Wear appropriate protective clothing and equipment to prevent repeated or prolonged skin contact with this product. Contaminated work clothing and shoes should not be taken from the workplace.

GLOVES: Wear appropriate protective gloves to prevent contact with this product.

RESPIRATOR: Use a NIOSH approved respirator based on contamination levels found in the work place and specific to the job assignment.



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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

DESCRIPTION:	White, free-flowing granules
MOLECULAR FORMULA:	ZnSO ₄ •H ₂ O
MOLECULAR WEIGHT:	179.46
pH:	5.0 @ 10% solution
MELTING POINT:	Decomposes above 500°C (932°F)
BOILING POINT:	Not applicable
VAPOR PRESSURE:	No applicable
VAPOR DENSITY:	Not applicable
WATER SOLUBILITY:	50% by weight
SOLVENT SOLUBILITY:	Insoluble in alcohol
SPECIFIC GRAVITY:	3.28

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Stable under normal temperatures and pressures.

CONDITIONS TO AVOID: Avoid contact with strong oxidizers and/or excessive heat. Do not allow spilled material to contaminate water sources.

INCOMPATIBILITIES: Contact with strong oxidizers may result in fire or explosion hazard.

HAZARDOUS DECOMPOSITION: Thermal decomposition products may include toxic and hazardous oxides of zinc and sulfur.

POLYMERIZATION: Has not been reported to occur under normal temperatures and pressures.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information cited below is for specific Zinc Sulfate (anhydrous)

TOXICITY DATA:

LD₅₀: 1710 mg/kg, oral, rat

LD₅₀: 245 mg/kg, oral, mouse

LOCAL EFFECTS: Corrosive-inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion

TARGET EFFECTS: Poisoning may affect the liver and kidneys

HEALTH EFFECTS:

INHALATION:

Inhalation of dust may cause irritation of the respiratory tract with sore throat, coughing, shortness of breath, labored breathing, pain in the nose, mouth, and throat, and burns of the mucous membranes. If sufficient quantities are inhaled, pulmonary edema may develop, often with a latent period of 5 - 72 hours. The symptoms may include tightness in the chest, dyspnea, frothy sputum, cyanosis, and dizziness. Physical findings may include weak, rapid pulse, hypotension, hemoconcentration, and moist rales.

SKIN CONTACT:

Direct contact may cause severe irritation, redness, pain, and possibly burns.

EYE CONTACT:

Direct contact may cause severe irritation, redness, pain, blurred vision, and burns, possibly severe. The degree of injury depends on the concentration and duration of contact. The full extent of the injury may not be immediately apparent. Application of a 20% zinc sulfate solution to corneas infected with herpetic keratitis ulcers resulted in edema and residual scarring upon healing.



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INGESTION:

Ingestion may cause a burning pain in the mouth and throat, fever, nausea, violent vomiting with severe abdominal pain, watery or bloody diarrhea, prostration, tenemus, retching, hyperglycemia, anuria, liver damage, kidney damage with albuminuria, acetonuria, and glycosuria, hypotension, sudden collapse, and convulsions.

SECTION 12: ECOLOGICAL INFORMATION

No data available

SECTION 13: DISPOSAL INFORMATION

Observe all federal, state and local regulations when disposing of this product.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Zinc Sulfate Monohydrate), class 9, UN 3077, PG III, RQ

DOT Hazard Class or Division: 9

DOT Identification Number: UN 3077

DOT Packing Group: III

DOT Reportable Quantity: 1000 lb/454 kg

DOT Labeling Requirements: Class 9

SECTION 15: REGULATORY INFORMATION

TSCA STATUS: All ingredients are listed on the TSCA Inventory of Chemical Substances

OTHER TSCS ISSUES: None

SARA SECTIONS 311/312: Acute Hazard

CALIFORNIA PROPOSITION 65: No

SECTION 16: OTHER INFORMATION

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

This information relates to the specific product designated and may not be valid for such 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 occur from the use of this information nor do we offer warranty against patent infringement.

TETRA Micronutrients reserves the right to refuse shipment of this product to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging and other handling systems that come in contact with it.



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Customers are responsible for compliance with local, state and federal regulations that may be pertinent in the storage, application and disposal of this product.