



**TETRA Micronutrients**

**Material Safety Data Sheet**

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

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**CHEMICAL PRODUCT - COMPANY IDENTIFICATION**

**TETRA Micronutrients**

230 Spring Hill Dr., Suite 310

The Woodlands, Texas 77386

(281) 419-9430

(800) 521-9979

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

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

**SUBSTANCE:** Chelated Ferrous Sulfate Solution

**TRADE NAMES/SYNONYMS:** None

**CHEMICAL FAMILY:** Inorganic Salt

**MSDS CREATION DATE:** 21 FEB 05

**MSDS REVISION DATE:** 14 NOV 08

**SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS**

The composition of this product is proprietary. This product or one or more of its components is/are hazardous as defined in 29 CFR 1910.1200. In the event of a medical emergency, spill or fire, compositional information will be revealed to responding emergency personnel.

**COMPONENTS:** Ferrous Sulfate, Ammonia, Proprietary Organic Acids, and Water

**CAS NUMBER:** 7439-89-6 (Ferrous Sulfate) 7664-41-7 (Ammonia), Proprietary (Proprietary Organic Acids), 7732-18-5 (Water)

**PERCENTAGE:** Proprietary

**PROBABLE CONTAMINANT:** Not known

**SECTION 3: HAZARDS IDENTIFICATION**

**NFPA RATINGS:** (SCALE 0-4): HEALTH=1, FIRE=0, REACTIVITY=0

**EMERGENCY OVERVIEW:** Clear brown liquid with slight ammonia odor. Maybe harmful if ingested but not expected to be a pathway in an agricultural/industrial environment. Liquid or mist may be irritating to the respiratory tract. Contact with eyes can cause burns. Exposure to the skin can cause burns and/or dryness with possible irritation. Avoid contact with eyes and/or skin. Wash thoroughly after handling. Work in well ventilated area.

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**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

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

**Long Term Effects:** In addition to short term exposure, digestive disorders may occur.

**SKIN CONTACT:**

**Short Term Effects:** May cause burns and/or dryness and irritation, possibly severe.

**Long Term Effects:** Same effects as short term exposure.

**EYE CONTACT:**

**Short Term Effects:** Contact may cause burns, possibly severe. Additional effects may include irritation, tearing and/or blurred vision.

**Long Term Effects:** Same effects as short term exposure.

**INGESTION:**

**Short Term Effects:** Not expected to be a pathway in an agricultural/industrial environment. May be fatal if swallowed. 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.

**Long Term Effects:** Same effects as reported in short term ingestion.

**CARCINOGEN STATUS:**

**OSHA:** No    **NTP:** No    **IARC:** No

**SECTION 4: FIRST AID MEASURES**

**INHALATION:** Remove from exposure area to fresh air immediately. If breathing is difficult, give oxygen. Oxygen must be administered by properly trained personnel. If breathing has stopped, perform artificial resuscitation. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately.

**SKIN CONTACT:** Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of product remains (at least 15-20 minutes). If burns occur, proceed with the following: cover affected area securely with sterile, dry, loose-fitting dressing. Treat symptomatically and supportively. Get medical attention immediately.

**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 and remove by gastric lavage unless the victim is already vomiting (Dreisbach, Handbook of Poisoning, 12<sup>th</sup> Ed.). Administration of gastric lavage should be performed by qualified medical personnel. If

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vomiting occurs, keep head lower than hips to prevent aspiration. Treat symptomatically and supportively. Get medical attention immediately.

**SECTION 5: FIRE FIGHTING MEASURES**

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

**EXTINGUISHING MEDIA:** Dry chemical, carbon dioxide, water spray or foam, as appropriate for surrounding material. For larger fires, use water spray, fog or regular foam (1996 North American Emergency Response Guidebook, RSPA P 5800.7, Guide Number 171).

**FIREFIGHTING:** Move product from fire area if you can without risk. Extinguish fire using agent suitable for type of surrounding fire and/or chemicals. 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:** Thermal decomposition may include toxic and hazardous oxides of zinc, sulfur, nitrogen and carbon.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**OCCUPATIONAL SPILL:** Do not touch spilled material. Stop leak if you can without risk. For small spills, take-up with sand or other absorbent material and place in containers for disposal. For larger spills, dike far ahead of spill for later disposal. Move containers from spill area if possible. Wear protective equipment. Deny entry to nonessential personnel and isolate hazard. Wash thoroughly after handling. Use with adequate ventilation.

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**SECTION 7: HANDLING AND STORAGE**

Observe all federal, state and local regulations when storing this product. Avoid outdoor storage. It is recommended that storage and transfers of this product be done on an impervious surface. Store in a tightly closed container. Store away from incompatible materials.

**SECTION 8. PERSONAL PROTECTIVE EQUIPMENT**

**EYES:** Chemical dust/splash goggles or full-face shield to prevent eye contact. As a general rule, do not wear contact lenses when handling.

**SKIN:** Impervious gloves and clothes.

**RESPIRATORY:** Not normally needed. If use generates an aerosol mist or respiratory irritation, use NIOSH-approved dust/mist respirator (such as 3M #8710).

**VENTILATION:** Recommended but no TLV established.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**DESCRIPTION:** Clear brown liquid with slight ammonia odor.

**pH:** 8.5 – 9.5

**MELTING POINT:** Not applicable

**BOILING POINT:** Not determined

**WATER SOLUBILITY:** 100%

**SPECIFIC GRAVITY (water = 1.0):** 1.23

**SECTION 10: STABILITY AND REACTIVITY**

**REACTIVITY:** Stable under normal temperatures and pressures.

**CONDITIONS TO AVOID:** Avoid contact with strong oxidizers, acids and/or excessive heat.

Dangerous gases may accumulate in confined spaces.

**INCOMPATIBILITIES:** Oxidizing materials, acids, metals, and metal oxides.

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

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

**SECTION 11. POTENTIAL HEALTH EFFECTS**

**ACUTE EFFECTS:**

**EYES:** May cause temporary eye irritation.

**SKIN:** May cause slight irritation, especially from prolonged exposure. May cause redness.

**INGESTION:** May cause stomach cramps and/or nausea.

**INHALATION:** None expected but inhalation may cause mild irritation of nasal mucous membranes.

**SUBCHRONIC EFFECTS:** None known.

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**CHRONIC EFFECTS:** None known.

**SECTION 12: ECOLOGICAL INFORMATION**

**ENVIRONMENTAL IMPACT RATING (0-4):** No data available

**ACUTE AQUATIC TOXICITY:** No data available

**DEGRADABILITY:** No data available

**LOG BIOCONCENTRATION FACTOR (BCF):** No data available

**LOG OCTANOL/WATER PARTITION COEFFICIENT:** No data available

**SECTION 13: DISPOSAL INFORMATION**

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

**SECTION 14: TRANSPORT INFORMATION** - ( Non-Regulated)

**SECTION 15. REGULATORY INFORMATION**

CERCLA: None.

SARA TITLE III, Section 313 Toxic Chemicals: None.

**SECTION 16. OTHER**

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