

**MATERIAL SAFETY DATA SHEET
FOR
THORN SMITH LABORATORIES
ANALYZED QUANTITATIVE UNKNOWNNS**

Ferrous Ammonium Sulfate for Fe
Catalog Number 80-1260

Manufacturer: Auric Enterprises, Inc.
d/b/a Thorn Smith Laboratories
Address: 7755 Narrow Gauge Road
Beulah, MI 49617
Phone Number: 231-882-4672
MSDS Number: TSL-005
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SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS - Chemical Name & Common Names
(Hazardous Components 1% or greater; Carcinogens 0.1% or greater)

Ferrous Ammonium Sulfate Hexahydrate

Formula: $(\text{NH}_4)_2\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$
CAS No.: 7783-85-9
OSHA PEL: 1 mg (Fe)/m³
ACGIH TLV: 1 mg (Fe)/m³
OTHER LIMITS: N/A

Sodium Sulfate

Formula: Na_2SO_4
CAS No.: 7757-82-6
OSHA PEL: N/E
ACGIH TLV: N/E
OTHER LIMITS: N/A

SECTION 2 - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: No information found.

Specific Gravity (H₂O=1) 1.9 (NH₄)₂Fe (SO₄)₂·6H₂O; 2.68 (Na₂SO₄)

Vapor Pressure (mm Hg and Temperature): No information found.

Melting Point: 100° C (212° F) (NH₄)₂Fe (SO₄)₂·6H₂O; 884° C (1623° F) (Na₂SO₄)

Vapor Density (Air-1): N/A

Evaporation Rate (-1): N/A

Solubility in water: Appreciable (More than 10%)

Water Reactive: No

Appearance and Odor: Pale blue-green crystals or crystalline powder $(\text{NH}_4)_2\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$; white odorless crystals or powder (Na_2SO_4) .

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method Used: N/A

Auto-Ignition Temperature: N/A

Flammability Limits in Air (% by Volume): N/A

LEL: N/A UEL: N/A

Extinguisher Media: Dry chemical, carbon dioxide, halon, water spray or standard foam. For larger fires, use water spray, fog, or standard foam.

Special Fire Fighting Procedures: Move container from fire area if possible. Do not scatter spilled material with high pressure water streams. Dike fire control water for later disposal. Use agents suitable for type of fire. Avoid breathing hazardous vapors or dusts, keep upwind. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode.

Unusual Fire and Explosion Hazards: Toxic gases produced: sulfur dioxide, corrosive fumes of ammonia, and toxic oxides of nitrogen. Negligible fire hazard when exposed to heat or flame.

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY: Stable Unstable

Conditions to Avoid: Moisture. Stable under normal temperatures and pressures. Slowly oxidizes and effloresces in air. May burn but does not readily ignite.

Incompatibility (Materials to Avoid): Strong oxidizers. Aluminum, magnesium, mineral acids, strong acids, and strong bases.

Hazardous Decomposition Products: Thermal decomposition may release oxides of sulfur, corrosive fumes of ammonia, and toxic oxides of nitrogen.

HAZARDOUS POLYMERIZATION: May Occur Will Not Occur

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY:

Inhalation Ingestion Skin Contact Eye Contact Not Hazardous

CARCINOGEN LISTED IN:

NTP OSHA IARC Monograph Not Listed

TOXICITY: Ferrous Ammonium Sulfate Hexahydrate: LD50 (oral-rat) 3250 mg/kg. Sodium Sulfate: LD50 (oral-mouse) 5989 mg/kg.

HEALTH HAZARDS - Acute:

Inhalation: Inhalation of dust may irritate nose and throat and cause dyspnea. Soluble iron salts may be absorbed by inhalation.

Ingestion: Abdominal pain, retching, and prolonged vomiting may begin 10-60 minutes after excessive ingestion of soluble iron salts. Hematemesis, watery and then tarry diarrhea, intense dehydration, shock, pallor, cyanosis, hypothermia, rapid, weak, or imperceptible pulse, hypotension, rapid respiration, acidosis, coagulation defects, drowsiness, hyporeflexia, vasomotor instability, dilated pupils and coma may follow. Death from shock may occur within 4-8 hours. If death is not immediate, the victim may improve, but cyanosis, pulmonary edema, pneumonitis from aspiration of vomitus, hyperthermia, acidosis, anuria, shock, convulsions, coma and death may occur 1-3 days later. After 2 days, survivors may develop hemorrhagic hepatic necrosis, which is usually reversible. Gastric scarring and contraction and pyloric obstruction may occur after 4 weeks. Pyloric stenosis and mild hepatic cirrhosis may persist.

Skin Contact: May cause irritation.

Eye Contact: Dust or mist may irritate the eyes or cause burns. Late eye degeneration has been reported in rabbits.

HEALTH HAZARDS - Chronic:

Inhalation: No information found

Ingestion: Repeated dosage may cause hemosiderosis with possible damage to liver and pancreas.

Skin Contact: Repeated and prolonged exposure to dust may irritate skin or cause dermatitis.

Eye Contact: No information found.

Signs and Symptoms of Exposure: No information found.

Medical Conditions Generally Aggravated by Exposure: None identified.

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation, and support if necessary.

Inhalation: Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Keep person warm and at rest. Get medical attention immediately.

Ingestion: If victim is conscious, immediately give 2 to 4 glasses of water and induce vomiting by touching finger to back of throat. Do not give carbonates. Get medical attention immediately.

Skin Contact: Remove contaminated clothing immediately. Wash exposed area with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15 minutes). Get medical attention immediately.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes or until no evidence of chemical remains, lifting upper and lower eyelids occasionally. Get medical attention immediately.

The following antidotes for iron poisoning have been recommended. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be determined by qualified medical personnel. When iron poisoning is evident, give deferoxamine 15 mg/kg/hr by continuous intravenous infusion to a maximum of 80 mg/kg in each twelve hour period. Single doses should not exceed 1 gram and the maximum in 24 hours should not exceed 6 grams. Deferoxamine is hazardous in patients with severe renal disorders or anuria. Injected deferoxamine should be reserved for serious poisoning (Dreisbach, Handbook of Poisoning, 11th Edition, 1983). Antidote should be administered by qualified medical personnel only.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

Acute: No Chronic: No Flammability: No Pressure: No Reactivity: No

Extremely Hazardous Substance: No
CERCLA Hazardous Substance: Yes (FeAm)
SARA 313 Toxic Chemicals: Yes (Sodium Sulfate)
TSCA Inventory: Yes (Sodium Sulfate)

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (Specify Type): The specific respirator selected must be based on the contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration. The following respirators are recommended based on the data found in the other sections of this Material Safety Data Sheet. They are ranked in order from minimum to maximum respiratory protection: chemical cartridge respirator with an organic vapor cartridge with a high-efficiency particulate respirator with a full facepiece; powered air-purifying respirator with a high-efficiency filter with a full facepiece; type "C" supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode with full facepiece, helmet or hood operated in continuous flow mode; self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

For firefighting and other immediately dangerous to life or health conditions: self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode; supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.

Protective Gloves: Employee must wear appropriate protective gloves to prevent contact with this substance.

Eye Protection: Employee must wear splash-proof or dust resistant safety goggles and a faceshield to prevent contact with this substance. Contact lenses should not be worn when working with this material.

Where there is any possibility than an employees eyes and/or skin may be exposed to this substance, the employer should provide an eye-wash fountain and quick-drench shower within the immediate work area for emergency use.

VENTILATION TO BE USED: Provide general dilution ventilation is a satisfactory health hazard control for to keep fume and dust levels as low as possible.

Local Exhaust Mechanical (General) Special
 Other (Specify)

Other Protective Clothing and Equipment: Employee must wear appropriate (impervious) clothing and Equipment to prevent repeated or prolonged skin contact with this substance.

Hygienic Work Practices: Avoid contact with eyes, skin, and clothing. Avoid breathing dust. Keep in a tightly closed container when not in use. Use with adequate ventilation. Wash thoroughly after handling.

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE/LEAK PROCEDURES

Steps to be taken if material is spilled or released:

Soil Spill: Dig holding area such as lagoon, pond or pit for containment. Use protective cover such as a plastic sheet to prevent material from dissolving in fire extinguishing water or rain.

Water Spill: Allow spilled material to aerate. Neutralize with agricultural lime, slaked lime, crushed limestone, or sodium bicarbonate. Add suitable agent to neutralize spilled material to pH 7. Use mechanical dredges or lefts to extract immobilized masses of pollution and precipitates.

Occupational Spill: Stop leak if you can do it without risk. For small spills, take up with sand or other absorbant material and place into clean, dry containers for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

Waste Disposal Methods: Dispose in accordance with all applicable local, state, and federal environmental regulations.

Precautions to be taken in handling and storage: Store in accordance with all applicable local, state, and federal environmental regulations.

Other precautions and/or special hazards: Material is hygroscopic.

NFPA Rating: Health: **2** Flammability: **0** Reactivity: **0**

HMIS Rating: No information available.

SECTION 8 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

Domestic (D.O.T.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)
Reportable in 1000 pound quantities.

International (T.M.O.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)
Reportable in 1000 pound quantities.

AIR (I.C.A.O.)

Proper Shipping Name: Chemicals, n.o.s. (Non-regulated)
Reportable in 1000 pound quantities.

The information published in this Material Safety Data Sheet has been compiled from our experience and data presented in various technical publications. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and assume no liability resulting from its use. We reserve the right to revise Material Safety Data Sheets periodically as new information becomes available.