

## Material Safety Data Sheet

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** Ferric Sulfate Solution

**Chemical Family:** Iron Salt Solution

**Manufacturer's Name:** Siemens Industry, Inc. - Water Technologies Business Unit

**Address:** 2650 Tallevast Road, Sarasota, FL 34243

**Product/Technical Information Phone Number:** 1.941.355.2971

**Medical/Handling Emergency Phone Number:** CHEMTREC 1.800.424.9300  
24 hours a day

**Transportation Emergency Phone Number:** CHEMTREC 1.800.424.9300  
24 hours a day

**Issue Date:** March 2000

**Revision Number / Date:** Rev 3 April 2011

### SECTION 2 – COMPOSITION INFORMATION

<u>Chemical Name</u>	<u>Percent by Weight</u>	<u>CAS #</u>
Ferric Sulfate	50-72	10028-22-5
Water	28-50	7732-18-5
Sulfuric Acid	≤0.20	7664-93-9

### SECTION 3 – HAZARDS IDENTIFICATION

**Appearance & Odor:** Dark reddish-brown liquid with a slight odor.

**Emergency Overview:** Corrosive.

**Fire & Explosion Hazards:** Not considered a fire/explosion hazard.

**Primary Route(s) of Exposure:** Skin and eye contact, inhalation.

**Inhalation – Acute Effects:** Mists are irritating to mucous membranes, respiratory tract, and lung tissues. Symptoms may include coughing and shortness of breath.

**Skin Contact – Acute Effects:** Causes skin irritation, dermatitis, and burns. Symptoms may include redness, itching, and pain.

**Eye Contact – Acute Effects:** Very irritating and corrosive to the eyes. May cause severe irritation or burns to the mucous membranes lining the inner surfaces of the eyelids.

**Ingestion – Acute Effects:** Low toxicity in small quantities, but larger doses may cause nausea, vomiting, diarrhea, and black stool. Pink urine discoloration is a strong indicator of iron poisoning. Liver damage, coma, and death from iron poisoning have been recorded.

**Aggravation of Pre-Existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney, or respiratory function may be more susceptible to this material.

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### SECTION 4 – FIRST AID MEASURES

**Inhalation First Aid:** Remove affected person from area to fresh air. Give artificial respiration ONLY if breathing has stopped. Obtain medical attention for any breathing difficulty.

**Skin Contact First Aid:** Immediately remove clothing from affected area and wash skin for 15-20 minutes with soap and flowing water. Clothing should be discarded or washed before reuse. Obtain medical attention if irritation persists.

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15-20 minutes while holding eyes open. Contacts should be removed before or during flushing. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

**Ingestion First Aid:** If victim is alert and not convulsing rinse mouth with water and give large amounts of water or milk to drink. DO NOT induce vomiting. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water or milk to drink. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

**Note to Physician:** DO NOT induce vomiting. Neutralize the material and treat symptomatically.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** Not applicable.      **Auto Ignition Temperature:** Not applicable.

**Upper/Lower Explosion Limits:** Not applicable.

**Extinguishing Media:** Water, CO<sub>2</sub>, or dry chemicals may be used.

**Fire Fighting Procedures:** At high temperatures, decomposition causes toxic SO<sub>x</sub> fumes and iron fumes. Also, acid fumes may be present. Fire fighters should wear a self-contained breathing apparatus (SCBA).

**Fire & Explosion Hazards:** Not considered a fire / explosion hazard. Explosive hydrogen gas can be generated if product is exposed to alkaline metals.

**Hazardous Products of Decomposition and/or Combustion:** At high temperatures, decomposition causes toxic SO<sub>x</sub> fumes and iron fumes. Also, acid fumes may be present.

#### NFPA Ratings:

HEALTH - 2

FLAMMABILITY - 0

REACTIVITY - 0

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Spill/Leak Procedures:** Dike area of spill if possible. Absorb small spills with clay, dry sand, or vermiculite. Sweep up residue and collect in an appropriate container for disposal. For large spills, keep out of sewers and storm drains. Pump liquid into appropriate disposal containers or absorb the liquid with sand or vermiculite and sweep or shovel residue into appropriate containers for disposal.

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**Cleanup:** Neutralize with lime or soda ash. Neutralization will generate large quantities of carbon dioxide gas so provide adequate ventilation during the neutralization process.

### SECTION 7 – HANDLING AND STORAGE

**Handling:** Appropriate safety gear should be worn when handling this material.

**Storage:** Product is corrosive to cast iron, cast bronze, copper and its alloys, galvanized steel, aluminum, and concrete. It may be safely stored in fiberglass, plastics, rubber, or type 316 or better grades of steel. Keep storage temperature between 50<sup>0</sup> F and 80<sup>0</sup> F. Keep container closed except when in active use.

### SECTION 8 –PERSONAL PROTECTION/ EXPOSURE CONTROL

**Respiratory Protection:** Respiratory protection is not required under normal conditions of use. However, if use conditions generate mists or sprays, wear a full face respirator equipped with acid gas cartridges.

**Skin Protection:** Rubber or neoprene gloves should be worn when handling.

**Eye Protection:** Wear chemical safety goggles during normal applications. If use conditions are likely to generate splashes, additionally wear a face shield.

**Ventilation Protection:** Use adequate general or mechanical ventilation.

**Other Protection:** Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

**Exposure Limits:** Exposure limits have not been developed for this material. However, for its components:

<u>Component</u>	<u>Exposure Limits</u>	
	<u>OSHA PEL, mg / m<sup>3</sup></u>	<u>ACGIH TLV, mg / m<sup>3</sup></u>
Ferric sulfate	- - -	1 (Soluble Fe salts, as Fe)
Sulfuric acid	1	0.2

### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** 220 °F

**Specific Gravity:** 1.38 -1.57

**Solubility in Water:** Complete

**pH:** < 2

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### SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable under normal use conditions.

**Incompatibilities:** This material is corrosive to cast iron, cast bronze, brass 304SS, Hastelloy B, copper and its alloys, and galvanized steel. Also corrosive to aluminum, paints, enamels, and concrete.

**Hazardous Polymerization:** Will not occur.

**Hazardous Decomposition:** Toxic SO<sub>x</sub> fumes, iron fumes, and acid fumes are produced.

**Conditions to Avoid:** Open flames; avoid forming product mists, contact with incompatible materials, including alkalis.

### SECTION 11 – TOXICOLOGICAL INFORMATION

**Toxicological Data:** No data are available for this material. However, for its components:

Ferric sulfate: Oral LD 50 (rat ) = 500 mg / kg

Sulfuric acid: Oral LD 50 (rat ) = 2140 mg / kg

                  Inhalation LC 50 (rat) = 510 mg / m<sup>3</sup> in 2 hr

**Eye Contact – Chronic Effects:** On prolonged contact with the conjunctiva iron salts have been known to cause a local brown discoloration.

**Ingestion – Chronic Effects:** A deposition of excess iron may occur, which could lead to liver cirrhosis and fibrosis of the pancreas. Other complications may include somnolence, diarrhea, tachycardia and hematemesis.

**Carcinogenicity / Mutagenicity:** Not listed as a carcinogen by NTP, IARC, OSHA, ACGIH or NIOSH

**Reproductive / Neurotoxic Effects:** No reproductive or neurotoxic effects are known.

### SECTION 12 – ECOLOGICAL INFORMATION

No ecological effects of this product are known. Safely store product to prevent inadvertent release to the environment.

### SECTION 13 – DISPOSAL CONSIDERATIONS

**Regulatory Requirements:** All disposal methods must be in compliance with all Federal, State, Local, and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waster generator. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

**Disposal:** DO NOT DUMP ON THE GROUND OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State, Local, and Provincial laws and regulations. Regulations may vary in different locations. Generators of waste material are

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required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

### SECTION 14 – TRANSPORTATION INFORMATION

**Domestic Transportation:** This material is a hazardous material. Its Proper Shipping Description for US transportation is: Corrosive Liquids, Acidic, Inorganic, nos (Ferric sulfate solution), 8, UN 3264, III.

**International Transportation:** This material is a dangerous good. Its Proper Shipping Description for international transportation is: Corrosive Liquids, Acidic, Inorganic, nos (Ferric sulfate solution), 8, UN 3264, III.

### SECTION 15 – REGULATORY INFORMATION

#### US Regulations:

**OSHA Hazard Communication:** Hazardous

**OSHA Process Safety:** No

**CERCLA:** Yes. RQ = 1000 lb (as anhydrous ferric sulfate)

**SARA Section 302, 302, 313:** No

**SARA Section 311 / 312 Hazard Categories:**

**Acute:** Yes

**Chronic:** No

**Fire:** No

**Reactive:** No

**Pressure Release:** No

#### Canadian Regulations:

**CPR:** Corrosive, Class E

**DSL:** Listed

### SECTION 16 – OTHER INFORMATION

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**Revision Indicator:** Legal Entity name change 04/01/11