

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Kemira PIX-308
Synonyms: Iron (III) Sulfate
Product Description: Ferric Sulfate Solution
Chemical Family: Inorganic Salts
Molecular Formula: Fe₂(SO₄)₃·9H₂O
Intended/Recommended Use: Water and wastewater treatment Odor removal

KEMIRA WATER SOLUTIONS, INC., 808 EAST MAIN STREET, LAKELAND, FLORIDA 33801, USA
For Product Information call 1-800/879-6353. Outside the USA and Canada call 1-785/842-7424.
EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC: 1-800/424-9300.
Outside the USA and Canada call 1-703/527-3887.

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

Component / CAS No.	% (w/w)	OSHA (PEL):	ACGIH (TLV)	Carcinogen
Ferric sulfate 10028-22-5	~ 50 - 66	1 mg/m ³ Fe (TWA)	0.1 mg/m ³ as persulfate (TWA) 1 mg/m ³ as Fe (TWA)	-
Sulfuric Acid 7664-93-9	< 0.25	1 mg/m ³ (TWA)	0.2 mg/m ³ thoracic fraction (TWA)	IARC 1 ACGIH A2

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color: red-brown
Appearance: liquid
Odor: acidic

STATEMENTS OF HAZARD:

WARNING! IRRITATING TO EYES, SKIN, RESPIRATORY AND DIGESTIVE TRACTS

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:

The acute oral (rat) LD₅₀ is estimated to be >400 mg/kg. Direct contact with this material may cause moderate-severe eye and moderate skin irritation. Refer to Section 11 for toxicology information on the regulated components of this product.

4. FIRST AID MEASURES

Ingestion:

Administer 250 - 300 ml water to dilute material in the stomach. Do not induce vomiting. Never give anything by mouth to an unconscious person. Obtain medical attention.

Skin Contact:

In case of skin contact, wash affected areas of skin with soap and water. If skin irritation persists, call a physician.

Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms. If breathing has stopped, trained personnel should administer artificial respiration. If the heart has stopped, trained personnel should administer cardio-pulmonary resuscitation.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

The substance is not combustable. Use extinguishing media appropriate to the surrounding fire.

NOTE: Also see "Section 10 - Stability and Reactivity"

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep unnecessary people away. Sulfur oxides and/or toxic and flammable hydrogen sulfide may be formed under fire conditions.

Mechanical/Static Sensitivity Statements:

None

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

'Restrict access until clean-up operations are complete. Wear appropriate Personal Protective Equipment per Section 8.

Ensure trained personnel conduct clean up and wear Personal Protective Equipment per Section 8.

'Stop leak if possible. Avoid personal risk.

Methods For Cleaning Up:

'Small Spills - Absorb spill with clay or dry material or neutralize with lime, limestone or soda ash and collect in appropriate container for disposal. Neutralization with soda ash can generate carbon dioxide so additional ventilation may be necessary.

'Large Spills - Prevent entry into sewers and confined areas. Dike, if possible. Keep unnecessary people away, isolate area and deny entry. Pump liquid material into appropriate vessels as possible or absorb spill with clay absorbents or non-reactive dry materials and collect in appropriate container for disposal.

Neutralize spill residuals carefully with lime, limestone, or soda ash and collect in suitable container for disposal. Flush area with water. This could generate carbon dioxide so additional ventilation may be necessary.

'Notify Authorities if release exceeds reportable quantity per Section 15

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Handle with caution. Do not get in eyes. Wash thoroughly after handling. See MSDS for details.

Special Handling Statements: Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances. Use appropriate Personal Protective Equipment per Section 8. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product.

STORAGE

Prevent material from coming in contact with common metals. Ensure that all storage vessels are labeled. Avoid skin and eye contact. Wear appropriate protective clothing. Store only in dry rubber-lined, plastic, FRP or stainless steel (304, 316). Keep storage temperatures between 10o and 30o C. Store away from incompatible materials such as alkalis. Keep smaller containers as drums and totes tightly closed when not in use or when empty. Product should be used within one year. Storage facilities should have secondary containment as required by law or regulation. Storage tanks, piping and offloading points should be labeled with appropriate signage to avoid accidents. Containers of this material may be hazardous when empty, since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

A ventilation system of local/general exhaust is recommended to keep employee exposure below the Airborne Exposure Limits. Ensure that eyewash station and safety showers are proximal to the workstation location.

Respiratory Protection:

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

Eye Protection:

Prevent eye and skin contact. Provide eye wash fountain and safety shower in close proximity to points of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:

Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.

Additional Advice:

Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	red-brown
Appearance:	liquid
Odor:	acidic
Boiling Point:	105 - 110 °C 220 - 230 °F
Melting Point:	<-18 °C 0 °F
Vapor Pressure:	Not available
Specific Gravity/Density:	1.38 - 1.59
Vapor Density:	Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

Percent Volatile (% by wt.):	~50
pH:	<2.0
Saturation In Air (% By Vol.):	Not available
Evaporation Rate:	Similar to water
Solubility In Water:	soluble
Volatile Organic Content:	
Flash Point:	Not applicable
Flammable Limits (% By Vol):	Not applicable
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not applicable
Partition coefficient (n-octanol/water):	Not applicable
Odor Threshold:	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	Avoid contact with mineral acids, excessive heat and bases/alkalis.
Polymerization:	Will not occur
Conditions To Avoid:	None known
Materials To Avoid:	Carbon steel, brasses, and nylon.
Hazardous Decomposition Products:	Thermal decomposition: after completely dry and heated to decomposition will produce oxides and sulfur.

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION. Toxicological information on the regulated components of this product is as follows:

Based on Ferric Sulfate Solid (anhydrous)
TOXICOLOGICAL DATA: LD50 (oral, rat) = 500 mg/kg

Mutagenicity: Not available

Reproductive Effects: Not available

Teratogenicity and Fetotoxicity: Not available

Synergistic Materials: Not available

The acute oral (rat) LD50 and acute 1-hour inhalation (rat) for sulfuric acid are 2,140 mg/kg and 347 ppm (0.348 mg/L/4hr), respectively. Sulfuric acid is corrosive to the skin and eyes. Concentrated sulfuric acid can also be corrosive to the nose, mucous membranes, respiratory tract and gastrointestinal tract. Inhalation of the vapors or mist can cause pulmonary edema, emphysema or permanent changes in pulmonary function. Chronic exposure has been reported to be associated with dermatitis, chronic bronchitis, gastritis, erosion of dental enamel, conjunctivitis, increased frequency of respiratory tract infections and cancer of the larynx, lungs and upper respiratory tract.

12. ECOLOGICAL INFORMATION

No aquatic LC50, BOD, or COD data available.

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA `listed hazardous waste` or has any of the four RCRA `hazardous waste characteristics.` Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA `listed hazardous waste`; information contained in Section 15 of this MSDS is not intended to indicate if the product is a `listed hazardous waste.` RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s.

Hazard Class: 8

Packing Group: III

UN/ID Number: UN3264

Transport Label Required: Corrosive

Technical Name (N.O.S.): Contains ferric sulfate

Hazardous Substances:

<u>Component / CAS No.</u>	<u>Reportable Quantity of Product (lbs)</u>
Ferric sulfate	2053.4

TRANSPORT CANADA

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s.
 Hazard Class: 8
 Packing Group: III
 UN Number: UN3264
 Transport Label Required: Corrosive
 Technical Name (N.O.S.): Contains ferric sulfate

ICAO / IATA

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s.
 Hazard Class: 8
 Packing Group: III
 UN Number: UN3264
 Transport Label Required: Corrosive
 Packing Instructions/Maximum Net Quantity Per Package:
 Passenger Aircraft: 818; 5L
 Cargo Aircraft: 820; 60L
 Technical Name (N.O.S.): Contains ferric sulfate

IMO

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s.
 Hazard Class: 8
 UN Number: UN3264
 Packing Group: III
 Transport Label Required: Corrosive
 Technical Name (N.O.S.): Contains ferric sulfate

15. REGULATORY INFORMATION**INVENTORY INFORMATION**

United States (USA): This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U. S. C. 2601 et. seq.

Canada: Components of this product have been reported to Environment Canada in accordance with Sections 66 and/or 81 of the Canadian Environmental Protection Act (1999), and are included on the Domestic Substances List.

European Union (EU): All components of this product are included in the European Inventory of Existing Chemical Substances (EINECS) in compliance with Council Directive 67/548/EEC and its amendments.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
Ferric sulfate 10028-22-5	~ 50 - 66	None	1000	No	No
Sulfuric Acid 7664-93-9	< 0.25	1000	1000	Yes	No

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 0 - Materials that will not burn.

Reactivity: 0 - Materials that in themselves are normally stable, even under fire exposure conditions.

Reasons For Issue: New Format

Richard Moye, Product Regulatory, 1-251-662-1581
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