Material Safety Data Sheet

Ferric Sulfate Solution 60% RXSOL 1450 (RXSOL-33-3330-300)

1. Product and Company Identifaction

Product Name	Ferric Sulfate Solution 60% (RXSOL 1450)
Part Number	RXSOL-33-3330-300

Company Details:
RX MARINE INTERNATIONAL
105, A wing , BSEL , TECH PARK.
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Website	**www.rxmarine.com**

2. Composition / informationon ingredients

Name of Substance	% (w/w)	OSHA	ACGIH (TLV)
Sulfuric Acid	0.5	1 mg/m3 (TWA)	0.2mg/m3 thoracic fraction (TWA)
Ferric Sulfate	60 ± 5 (43 ± 5 as)	1mg/m3 Fe (TWA)	0.1 mg/m3 as persulfate (TWA)

3. Hazards Identification

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	Direct contact with this material may cause moderate to severe eye and moderate skin irritation. The acute oral (rat) LD50 is estimated to be >400 mg/kg.
Other Important Hazards	Refer to TOXICOLOGICAL INFORMATION (Section 11) for additional information.

4. First Aid Measures

Ingestion	Never give anything by mouth to an unconscious person. Obtain medical attention. Do not induce vomiting. Administer 250 – 300 ml water to dilute material in the stomach.
Skin Contact	In case of skin contact, wash affected areas of skin with soap and water. If skin irritation persists, call a physician.
Inhalation	If breathing has stopped, trained personnel should administer artificial respiration. If the heart has stopped, trained personnel should administer CPR. Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

5. Fire-fighting Measures

Suitable Extinguishing Media	The substance is not combustible. Use extinguishing media appropriate to the surrounding fire.
Protective Equipment	Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection). Firefighters and others exposed, wear self-contained breathing apparatus.
Special Hazards	Sulfur oxides and/or toxic and flammable hydrogen sulfide may be formed under fire conditions. Keep unnecessary people away.
Mechanical/Static Sensitivity Statements	None
NOTE	Also see “Section 10 – Stability and Reactivity”

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 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	HANDLING Precautionary Measures
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	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 10° and 30°C. Store away from incompatible materials such as alkalis. Keep smaller containers (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 and 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	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. Prevent eye and skin contact.
Skin Protection	Prevent contamination of skin or clothing when removing protective equipment. Wear impermeable gloves and suitable protective clothing.
Additional Advice	Before eating, drinking, or smoking wash face and hands thoroughly with soap and water. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use.



Gloves



Suit

9. Physical and chemical properties

Appearance	Liquid
Colour	Red-brown
Odour	Acidic
pH	2.0
Melting Point	-18°C (0°F)
Boiling Point	105-110°C (220-230°F)
Flash Point	Not Applicable
Percent Volatile (% by wt.)	~50
Solubility in Water	Soluble
Evaporation Rate	Similar to water
Saturation by Air (% by Vol.)	Not Available
Vapour pressure	Not Applicable
Volatile Organic Content	Not Applicable
Specific Gravity	1.50 -1.59 @ 25°C
Flammable Limits (% by Vol.)	Not Applicable
Autoignition Temperature	Not Applicable
Decomposition Temperature	Not Applicable
Partition coefficient (n-octanol/water	Not Applicable
Odor Threshold	No information available.

10. Stability and reactivity

Stability	Stable.
Polymerization	Will not occur.
Conditions to avoid	Avoid contact with mineral acids, excessive heat and bases/alkalis.

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

Information	For additional toxicological information, refer to Section 3. Toxicological information on the regulated components of this product is as follows: 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.
LD50 (intraperitoneal mouse)	168 mg/kg
LD50 (oral, rat)	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE Acute oral toxicity (LD50): 689 mg/kg [Rat].
Mutagenicity	500 mg/kg
Reproductive Effects	Not available
Teratogenicity and Fetotoxicity	Not available
Synergistic Materials	Not available

12. Ecological information

Information	The test values shown for this product are actually the results for studies conducted on anhydrous ferric sulfate.
Alge Test:	Test: Acute toxicity, freshwater Duration: 7 day Species: Green Algae (Scenedesmus subspicatus) 10000 ug/l Toxicity endpoint not reported. Based on the anhydrous material. 1978 Journal. Egypt. J. Bot. 21(2):121-130
Fish Test	Test: Acute toxicity, freshwater Duration: 24 hr Procedure: Static Species: Mosquitofish (Gambusia affinis) 37,200 ug/l LC50 Based on the anhydrous material. 1957 Journal: Sewage Ind. Wastes 29(6):695-711 Test: Acute toxicity, freshwater Duration: 96 hr Procedure: Static Species: Mosquitofish (Gambusia affinis) 37,200 ug/l LC50 Based on the anhydrous material. 1957 Journal: Sewage Ind. Wastes 29(6):695-711
Other Test	Test: Acute toxicity, freshwater Duration: 48 hr Species: Rock Oyster (Saccostrea commercialis) 100-200 ug/l NOEC Based on the anhydrous material. 1997 Journal: Ectoxicol.Environ.Saf. 37:30-36

13. Disposal considerations

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 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).

14. Transport information

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

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.):
Technical Name (N.O.S.)	Contains ferric sulfate
Hazardous Substances	Component/CAS No Ferric sulfate ~1600 lbs.
Reportable Quantity of Product (lbs)	~1600 lbs. (Ferric Sulfate RQ=1000 lbs)

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.
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 Sulfuric Acid 0.25 1000 1000 Yes No 7664-93-9 Ferric sulfate 60 ± 5 (43 ± 5 as anhydrous) none 1000 No No 10028-22-5
PRODUCTHAZARDCLASSIFICATION UNDER SECTION 311 OF SARA	Acute

16. Other information

Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and weassume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if **Rx Marine International** has been advised of the possibility of such damages.

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