



Solve 7K

Material Safety Data Sheet

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COMPANY: WaterSolve, LLC, 4964 Starr St. S.E. Grand Rapids, MI 49546, USA
For Emergency or Product information call 616-575-8693.

I. Product Identification

Product Name: **Iron (III) Sulfate**
Description: Granulated and compounded Iron III hydrates

Component	CAS #	Percent (w/w)	ACGIH TVL	OSHA (PEL)	Carcinogen
Ferric sulfate	010028-22-5	66-74% (dry weight: 69-77%)	0.1 mg/m ³ Fe Persulfate (TWA) 1mg/m ³ as FE (TWA)	1 mg/m ³ (as Fe) (TWA)	-

II. Hazards Identification

Emergency Overview:

Appearance and odor:

Color: yellow-tannish-gray

Appearance: granular

Odor: slight

Statements of hazard!

**WARNING! HARMFUL IF SWALLOWED OR INHALED
IRRITATING TO EYES, SKIN, RESPIRATORY AND DIGESTIVE TRACTS**

POTENTIAL HEALTH EFFECTS:

EFFECTS OF EXPOSURE: Refer to Section 11 for toxicology information on the regulated components of this product. Skin or eye contact with solutions of this product may cause moderate skin and eye irritation.

III. First Aid Measures

General: If you feel unwell, seek medical attention (show the label or this MSDS if possible). Effects of the exposure (inhalation, ingestion, or skin contact) to the substance may be delayed. Ensure that medical personnel are aware of the material (s) involved, and take precautions to protect themselves.

Eye Contact: Immediately irrigate with large amounts of water for at least 15 minutes. Hold eyelids apart during irrigation. Send patient to physician immediately if there are persistent symptoms.

Skin Contact: Wash affected area with soap or mild detergent and running water for at least 15 minutes. If irritation persists, seek medical attention.

Inhalation: Remove person from exposure area to fresh air. If breathing has stopped, personnel should administer artificial respiration. If the heart has stopped, trained personnel should administer cardio-pulmonary resuscitation. Obtain medical advice if there are persistent symptoms.

Ingestion: If conscious, give two (2) glasses of water. **DO NOT INDUCE VOMITING.** Do not give anything by mouth to an unconscious person. Administer 250-300ml water to dilute material in the stomach. Call physician immediately.

IV. Fire and Explosion Hazard Data

Suitable Extinguishing Media:

Use extinguishing media appropriate to the surrounding fire. This material will not burn readily.

Protective Equipment:

Wear full firefighting protective clothing. 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 containers cool by spraying with water if exposed to fire. Keep unnecessary people away.

Mechanical/Static Sensitivity Statements:

None

V. Storage and Handling

Handling:

Handle all chemicals with respect. Avoid contact with skin, eyes or clothing. Wear protective clothing. Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances.

Special Handling Statements: Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances. Observe all warnings and precautions listed for the product. Wear appropriate Personal; Protection Equipment. Inspect containers for damage or leaks before handling. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product. Handle only with equipment, materials and supplies by their manufacturer as being compatible and appropriate for use with this product.

Storage Requirements: 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 temperature between 10° and 30°C. Store away from incompatible materials such as alkalis. Keep smaller containers as drums and totes tightly closed when not in use and when empty. Product should be used within one (1) 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.

VI. Accidental Release Measures/Waste Disposal

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator.

Where exposure level is known, wear approved respirator suitable for level of exposure. Refer to Section 8 (Exposure Controls-Personal Protection) for appropriate personal protective equipment.

Methods for cleaning up:

Sweep up into containers for disposal. Dispose of contaminated material as prescribed.

Environmental Precautions:

Use appropriate containment to avoid environmental contamination. Prevent water contaminated with this product from entering drains, sewers, or streams, growing crops/keeping animal areas, and sites of native flora and fauna.

VII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Preventive Measures:

Engineering Controls: Engineering controls are not necessary if good hygiene practices are followed.

Personal Protection Equipment

Eye Protection: Wear eye/face protection. Prevent eye and skin contact.

Skin Protection: Wear impervious gloves, and apron and full work clothing including long sleeved shirts, trousers and boots.

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.

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.

VIII. Physical and Chemical Properties

Appearance and odor:	Yellowish-tannish-gray granules/ slight odor.
pH	N/A
Boiling point:	N/A
Melting point:	>300 °C
Specific gravity:	1200 – 1400 g/cm ³
Vapor Pressure	N/A
Specific gravity/density:	N/A
Vapor Density	N/A
Solubility in water:	soluble
Volatile (by wt. %):	N/A
Saturation in Air (%by Vol.)	N/A
Evaporation Rate:	N/A
Volatile Organic Content:	N/A
Flash point:	N/A
Flammable Limits (% by Vol):	N/A
Autoignition Temperature:	N/A
Decomposition Temperature:	N/A
Partition coefficient (n-octanol/water)	N/A

IX. Stability and Reactivity Data

Stability:	Stable
Conditions to avoid:	To avoid product degradation and equipment corrosion, do not use iron, copper, or aluminum containers or equipment. Avoid contact with strong acids or bases and excessive heat.
Polymerization:	Will not occur
Conditions to avoid:	None known
Hazardous Decomposition Products:	oxides of sulfur (includes sulfur di and tri oxides)

X. Transportation Information

US DOT Hazard Class: 9, PGIII

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s.
UN #: UN 3077
Technical Name (N.O.S.): Contains ferric sulfate
For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

XI. Toxicological and Ecological Information

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

Ferric sulfate

Available TOXICOLOGICAL DATA:

LD50 (intraperitoneal mouse): 168 mg/kg

LD50 (oral, rat) = 500 mg/kg

Mutagenicity: Not available

Reproductive Effects: N/A

Teratogenicity and Fetotoxicity: N/A

Synergistic Materials: N/A

ECOLOGICAL INFORMATION

The test values shown for this product are actually the results for studies conducted on anhydrous ferric sulfate.

ALGAE TEST RESULTS

Test: Acute toxicity, freshwater

Duration: 7 day

Species: Green alga (*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 RESULTS

Test: Acute toxicity, freshwater

Duration: 24 hr Species: Mosquitofish (*Gambusia affinis*) Based on the anhydrous material.

1957Journal: Sewage Ind. Wastes 29(6): 695-711

37,200 ug/l LC50

Test: Acute Toxicity, freshwater

Duration: 96 hr Species: Mosquitofish (*Gambusia affinis*) Based on the anhydrous material.

37,200 ug/l LC50

1957Journal: Sewage Ind. Wastes 29(6): 695-711

OTHER TEST RESULTS

Test: Acute toxicity, freshwater

Duration: 48hr

Species: Rock oyster (*saccostrea commeriallis*)

100-200 ug/l NOEC

Based on anhydrous material. 1997 Journal:
Ectoxicol.Envirion.Saf. 37:30-36

XII. DISPOSAL CONSIDERATIONS

Review federal, state, and local government requirements prior to disposal.

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 Characteristic. 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. Federal regulations, may also apply to the classification of the material 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 to 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. All local and federal regulations should be followed.

14. TRANSPORT INFORMATION

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

US DOT

Proper shipping name: Aluminum chloride solution
Hazard Class: 9
Packing Group: III
UN/ID Number: UN3077
Transport Label Required: Class 9
Technical Name (N.O.S.): Contains ferric sulfate
Hazardous Substances:

<u>Component/CAS No.</u>	<u>Reportable Quantity of Product (lbs)</u>
Ferric sulfate	~1299 lbs. (Ferric Sulfate RQ + 1000 lbs)

Comments: Hazardous Substances/reportable quantities-DOT requirements specific to Hazardous substances only apply if the quantity in one package equals or exceeds the product reportable quantity.

TRANSPORT CANADA

Proper shipping name: Not applicable/Not regulated

ICAO/ IATA

Proper shipping name: Environmentally hazardous substance, solid, n.o.s.
Hazard Class: 9
Packing group: III
UN Number: UN3077
Transport label required: Corrosive
Packing instructions/ Maximum net quantity per package
Passenger Aircraft: No limit
Cargo Aircraft: Not limit
Technical Name (N.O.S.): Contains ferric sulfate

IMO

Proper Shipping name: Aluminum chloride solution
Hazard Class: 9
UN Number: UN3077
Packing Group: III
Transport label required: contains ferric sulfate

15. REGULATORY INFORMATION

INVENTORY INFORMATION

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

Canada: All components of this product have been reported to Environmental 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 on the European Inventory of Existing Chemical Substances (EINECS) in compliance with Council Directive 67/548/EEC and its amendments

OTHER INFORMATION

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	66-74 (dry weight: 69-77%)	None	1000	No	No

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute

- 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.

This information is given without any warranty or representation. This information is for the specific material described only and may not be valid if the material is used in combination with any other materials or in any process. The user is responsible to determine the completeness of the information and suitability for the user's own particular use. The knowledge and belief of the company, the information is accurate and reliable as of the date indicated but the company makes no express or implied warranty of merchantability for the material or the information. The company makes no express or implied warranty of fitness for a purpose for the material or for the information.