

SAFETY DATA SHEET



Certified to
NSF/ANSI/CAN 60

MUL = 600 mg/L

Revision date 05-Sep-2023

Revision Number 1

1. Identification

Product identifier

Product Name Ferric Sulfate Solution - 12%

Other means of identification

Product Code(s) MC6R-4

UN number or ID number UN3264

Synonyms Iron (III) sulfate solution, Sulfuric acid iron (3+) salt (3:2) solution

Recommended use of the chemical and restrictions on use

Recommended use Coagulating and Flocculating agent

Restrictions on use No information available None known

Details of the supplier of the safety data sheet

| Supplier Address | Manufacturer Address |
|---|---|
| USALCO, LLC 8701 Park Place Blvd Houston, TX 77017 +1 (713) 740-9611 Hours: Monday - Friday 8:00 am - 5:00 pm CST (Central Standard Time) | USALCO, LLC 2601 Cannery Ave. Baltimore, MD 21226 |

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Emergency Telephone CHEMTRAC: (800) 424-9300
Outside USA - +1 (703) 527-3887 collect calls accepted

2. Hazard(s) identification

Classification

| | |
|-----------------------------------|------------|
| Acute toxicity - Oral | Category 4 |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/eye irritation | Category 1 |
| Corrosive to metals | Category 1 |

Hazards not otherwise classified (HNOC)

Not applicable

Label elements**DANGER****Hazard statements**

Harmful if swallowed
 Causes severe skin burns and eye damage
 May be corrosive to metals

**Appearance** Opaque**Physical state** Liquid**Odor** Slight acrid**Precautionary Statements - Prevention**

Keep only in original packaging.
 Do not breathe dust/fume/gas/mist/vapors/spray.
 Wash hands, face and any exposed skin thoroughly after handling. Do not touch eyes.
 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statements - Response

Get emergency medical help immediately.
 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Immediately rinse with water for several minutes. Wash contaminated clothing before reuse.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
 Absorb spillage to prevent material damage.

Precautionary Statements - Storage

Store locked up.
 Store in corrosive resistant container with a resistant inner liner.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Other information

Harmful to aquatic life with long lasting effects. May be harmful if swallowed.

3. Composition/information on ingredients**Substance****Synonyms**

Iron (III) sulfate solution, Sulfuric acid iron (3+) salt (3:2) solution.

| Chemical name | CAS No | Weight-% | Trade secret |
|----------------|------------|----------|--------------|
| Water | 7732-18-5 | ~ 65% | * |
| Ferric Sulfate | 10028-22-5 | ~ 35% | * |

*The exact percentage (concentration) of composition has been withheld as a trade secret. While some components are claimed as trade secret in accordance with the provision of OSHA 29 CFR 1910.1200(i), all known hazards are clearly communicated within this document.

4. First-aid measures

Description of first aid measures

| | |
|---|---|
| General advice | IF exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance. |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Call physician immediately. |
| Eye contact | Remove contact lenses, if worn. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical advice immediately. |
| Skin contact | Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention. |
| Ingestion | Seek medical advice immediately. Give large amounts of water or milk to drink. Do NOT induce vomiting. If vomiting should occur spontaneously, keep airway clear. Never give anything by mouth to an unconscious person. |
| Self-protection of the first aider | See section 8 for more information. |

Most important symptoms and effects, both acute and delayed

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|-----------------|--|
| Symptoms | Possible eye, skin, and respiratory tract irritation or burns. |
|-----------------|--|

Indication of any immediate medical attention and special treatment needed

| | |
|---------------------------|------------------------|
| Note to physicians | Treat symptomatically. |
|---------------------------|------------------------|

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Water Spray, Carbon Dioxide, Foam, Dry Chemical. |
| Large Fire | CAUTION: Use of water spray when fighting fire may be inefficient. |
| Unsuitable extinguishing media | No information available. |
| Specific hazards arising from the chemical | May produce hazardous fumes or hazardous decomposition products. Product is a water solution and nonflammable. In a fire, this product may build up pressure and rupture a sealed container; cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray. |
| Explosion data | |
| Sensitivity to mechanical impact | None. |
| Sensitivity to static discharge | None. |
| Special protective equipment for fire-fighters | Full protective clothing and approved self-contained breathing apparatus required for firefighting personnel. |

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

| | |
|---------------------------------|--|
| Personal precautions | Wear adequate personal protective clothing and equipment. Approved breathing apparatus may be necessary. |
| For emergency responders | Use personal protection recommended in Section 8. |

Methods and material for containment and cleaning up

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|--|--|
| Methods for containment | Prevent further leakage or spillage if safe to do so. Build dikes as necessary to contain flow of large spills. |
| Methods for cleaning up | Clear spills immediately. For small spills, use soda ash to neutralize, an inert material to absorb, or wash product to a chemical sewer. Place contaminated materials into containers and store in a safe place to await proper disposal. Caution: Use of soda ash may generate carbon dioxide gas. Provide adequate ventilation to spill area. |
| Prevention of secondary hazards | Do not allow liquid to enter streams or waterways. |

7. Handling and storage**Precautions for safe handling**

| | |
|--------------------------------|--|
| Advice on safe handling | Keep away from heat and open flame. Keep container closed when not in use. Avoid contact with eyes, skin and clothing. Wear chemical splash goggles, gloves, and protective clothing when handling. Wash thoroughly after handling. Do not breathe mist or spray. Use with adequate ventilation and employ respiratory protection where mist or spray may be generated. FOR INDUSTRIAL USE ONLY. |
|--------------------------------|--|

Conditions for safe storage, including any incompatibilities

| | |
|---------------------------|--|
| Storage Conditions | Keep in tightly closed container. Store in a cool, dry place away from direct heat. Do not store in unlined metal containers. Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel. |
|---------------------------|--|

8. Exposure controls/personal protection**Control parameters**

| | | | |
|------------------------|---|----------|-------|
| Exposure Limits | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. | | |
| Chemical name | ACGIH TLV | OSHA PEL | NIOSH |

| | | | |
|------------------------------|-----------------------------|---------------------------------------|-----------------------------|
| Chemical name | ACGIH TLV | OSHA PEL | NIOSH |
| Ferric Sulfate 10028-22-5 | TWA: 1 mg/m ³ Fe | (vacated) TWA: 1 mg/m ³ Fe | TWA: 1 mg/m ³ Fe |

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Appropriate engineering controls

| | |
|-----------------------------|--|
| Engineering controls | Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, 'Industrial Ventilation, A Manual of Recommended Practices', most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient. Ensure that eyewash stations and safety showers are close to the workstation location. |
|-----------------------------|--|

Individual protection measures, such as personal protective equipment

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|----------------------------|--|
| Eye/face protection | Wear chemical splash goggles and face shield (when eye and face contact is possible due to splashing or spraying of material). |
| Hand protection | Appropriate chemical resistant gloves should be worn. |

| | |
|--|--|
| Skin and body protection | Standard work clothing and work shoes. |
| Respiratory protection | If exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient. |
| Environmental exposure controls | Do not allow into any sewer, on the ground or into any body of water. |
| General hygiene considerations | Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Ensure that eyewash stations and safety showers are close to the workstation location. |

9. Physical and chemical properties

Information on basic physical and chemical properties

| | |
|-----------------------|--------------------------|
| Physical state | Liquid |
| Appearance | Opaque |
| Color | Reddish brown |
| Odor | Slight acrid |
| Odor threshold | No information available |

| Property | Values | Remarks • Method |
|---|-----------------------------|--------------------------|
| pH | < 2 | No information available |
| Melting point / freezing point | No information available | No data available |
| Boiling point / boiling range | 105 - 110 °C (221 - 230 °F) | No information available |
| Flash point | Not applicable | No data available |
| Evaporation rate | No information available | No data available |
| Flammability (solid, gas) | Not applicable | No data available |
| Flammability Limit in Air | | No information available |
| Upper flammability or explosive limits | No data available | |
| Lower flammability or explosive limits | No data available | |
| Vapor pressure | No data available | No information available |
| Relative vapor density | No data available | No information available |
| Relative density | 1.571 - 1.591 | None known |
| Water solubility | No data available | Complete; |
| Solubility(ies) | No information available | No information available |
| Partition coefficient | No data available | None known |
| Autoignition temperature | Not applicable | No data available |
| Decomposition temperature | No information available | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | No information available |

Other information

| | |
|-----------------------------|--------------------------|
| Explosive properties | No information available |
| Oxidizing properties | No information available |
| Softening point | No information available |
| Molecular weight | No information available |
| VOC Content (%) | No information available |
| Liquid Density | 13.10 - 13.27 lbs./gal. |
| Bulk density | No information available |

10. Stability and reactivity

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|---|---|
| Reactivity | No data available. |
| Chemical stability | Stable under normal conditions of handling, use and transportation. |
| Possibility of hazardous reactions | None under normal processing. |

Hazardous polymerization Not anticipated under normal or recommended handling and storage conditions.

Conditions to avoid Extreme heat.

Incompatible materials Alkalies.

Hazardous decomposition products May produce hazardous fumes or hazardous decomposition products.

11. Toxicological information

Information on likely routes of exposure

Inhalation Inhalation of mist or spray may irritate respiratory tract and may cause burns and difficulty breathing.

Eye contact Based on pH, this product is expected to cause severe eye irritation, possibly resulting in burns and eye damage. Prolonged exposure to Aluminum salts may cause conjunctivitis.

Skin contact Prolonged and/or repeated contact will cause severe skin irritation and burns.

Ingestion Harmful if swallowed. May cause burns of the mouth, throat and stomach. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Adverse symptoms may include the following;

Eye Contact: watering, redness, irritation and possible burns.

Skin contact: irritation, rash, redness, itching, dermatitis, burning sensation and burns.

Ingestion: stomach pain, nausea, vomiting and diarrhea.

Inhalation: Respiratory irritation, coughing, wheezing and difficulty breathing.

Acute toxicity

Numerical measures of toxicity

No information available

ATEmix (oral) 1163 mg/kg

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------------------------|--------------------------|-------------|-----------------|
| Water 7732-18-5 | > 90 mL/kg (Rat) | - | - |
| Ferric Sulfate 10028-22-5 | 500 - 2000 mg/kg (Rat) | - | - |

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes burns.

Serious eye damage/eye irritation Risk of serious damage to eyes.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

| | |
|---------------------------------|--|
| Reproductive toxicity | No information available. |
| Developmental toxicity | No information available. |
| STOT - single exposure | No information available. |
| STOT - repeated exposure | No information available. |
| Target organ effects | Eyes, Skin, Respiratory system, Gastrointestinal tract (GI). |
| Aspiration hazard | No information available. |
| Other adverse effects | No information available. |
| Interactive effects | No information available. |

12. Ecological information

| | |
|--------------------|--|
| Ecotoxicity | Harmful to aquatic life with long lasting effects. |
|--------------------|--|

| Chemical name | Algae/aquatic plants | Fish | Toxicity to microorganisms | Crustacea |
|------------------------------|----------------------|---|----------------------------|-----------|
| Ferric Sulfate 10028-22-5 | -- | LC50 (96 h static) = 37.2 mg/L (Gambusia affinis) | - | - |

| | |
|--------------------------------------|---|
| Persistence and degradability | Not determined. No information available. |
|--------------------------------------|---|

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|------------------------|---------------------------|
| Bioaccumulation | No information available. |
|------------------------|---------------------------|

| | |
|-----------------|---|
| Mobility | Not determined. No information available. |
|-----------------|---|

| | |
|------------------------------|---------------------------|
| Other adverse effects | No information available. |
|------------------------------|---------------------------|

13. Disposal considerations

Waste treatment methods

| | |
|--|--|
| Waste from residues/unused products | This material exhibits the RCRA characteristic of corrosivity and any disposal must comply with hazardous waste disposal requirements. Dispose excess, residue and/or rinse waters in accordance with all applicable federal, state and local regulations. |
| Contaminated packaging | Since empty containers retain product residue, follow label warnings even after container is emptied. |
| US EPA Waste Number | D002 (Corrosivity). |

14. Transport information

| | |
|--|---|
| DOT | Regulated |
| UN number or ID number | UN3264 |
| Proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. (Ferric sulfate solution) |
| Transport hazard class(es) | 8 |
| Packing group | III |
| DOT Reportable Quantity lbs. (calculated) | 2,150 lbs in solution |
| Emergency Response Guide | 154 |

| Number | |
|----------------------------|---|
| TDG | Regulated |
| UN proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. (Ferric sulfate solution) |
| Transport hazard class(es) | 8 |
| Packing group | III |
| Technical Name | |
| Description | Ferric sulfate solution |
| IATA | Regulated |
| UN number or ID number | UN3264 |
| UN proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. (Ferric sulfate solution) |
| Transport hazard class(es) | 8 |
| Packing group | III |
| ERG Code | 8L |
| IMDG | Regulated |
| UN number or ID number | UN3264 |
| UN proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. (Ferric sulfate solution) |
| Transport hazard class(es) | 8 |
| Packing group | III |
| EmS-No | F-A; S-B |

15. Regulatory information

International Inventories

TSCA All ingredients are on the inventory or exempt from listing.

| Chemical name | CAS No | US TSCA Inventory listing | US TSCA inactive/active designation |
|----------------|------------|---------------------------|-------------------------------------|
| Water | 7732-18-5 | Present | Active |
| Ferric Sulfate | 10028-22-5 | Present | Active |

DSL/NDSL

All ingredients are on the DSL inventory or exempt from listing. None of the ingredients are on the NDSL inventory.

EINECS/ELINCS

All ingredients are on the EINECS inventory or are exempt from listing. None of the ingredients are on the ELINCS inventory.

ENCS

All ingredients are on the inventory or exempt from listing.

IECSC

All ingredients are on the inventory or exempt from listing.

KECL

All ingredients are on the inventory or exempt from listing.

PICCS

All ingredients are on the inventory or exempt from listing.

AICS

All ingredients are on the inventory or exempt from listing.

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|------------------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Ferric Sulfate 10028-22-5 | 1000 lb | - | - | X |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | Reportable Quantity (RQ) |
|------------------------------|--------------------------|------------------------------------|---|
| Ferric Sulfate 10028-22-5 | 1000 lb | - | RQ 1000 lb final RQ RQ 454 kg final RQ |

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

| Chemical name | New Jersey | Massachusetts | Pennsylvania |
|------------------------------|------------|---------------|----------------------|
| Ferric Sulfate 10028-22-5 | sn 1034 | Present | Environmental hazard |

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. Other information

| | | | | |
|-------------|-------------------------|-----------------------|---------------------------|------------------------------|
| NFPA | Health hazards 2 | Flammability 0 | Instability 0 | Special hazards |
| HMIS | Health hazards 2 | Flammability 0 | Physical hazards 0 | Personal protection B |

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

| | | | |
|---------|-----------------------------|------|----------------------------------|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value | * | Skin designation |

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

EPA (Environmental Protection Agency)

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

Japan GHS Classification

Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organization for Economic Co-operation and Development Environment, Health, and Safety Publications

Organization for Economic Co-operation and Development High Production Volume Chemicals Program

Organization for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Revision date 05-Sep-2023

Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet