Safety Data Sheet (SDS)
Ferrous Sulfate Solution

SECTION 1 – Chemical Identification and Supplier's Information

Product Name: Ferrous Sulfate Solution
Product Use: Water Treatment Chemical
Product Formula: $FeSO_4$
Chemical Family: Inorganic Iron Salts
CAS #: 7720-78-7

Supplier's Name and Address:
Water Guard Inc.

P.O. Box 2226
Wilson, NC 27894

Emergency Phone Numbers:

Water Guard (800) 872-7665
PERS- Afterhours (800) 633-8253

SECTION 2 – Hazards Identification

GHS Information

Signal Word: **Warning**

Hazard Class: Corrosive to Metals (H290)
Hazard Category: 1
Hazards Statements: Harmful if Swallowed

Emergency Overview: Avoid overexposure. Prolonged skin contact with liquid form may be harmful and require medical attention. Harmful if inhaled.

Pictograms:

Health Hazards

- **Acute Toxicity, Oral** – Category 4. May cause irritation to the mouth and stomach. Higher doses may lead to abnormal liver function with nausea or vomiting, stomach pain, diarrhea, fast and weak pulse, lethargy, pallor, shock, hypertension, dilated pupils, fever, coma, and even death. Individuals with pre-existing liver diseases may have increased susceptibility to the toxicity of exposure.
- **Acute Toxicity, Dermal** – Category 4. Prolonged contact may cause irritation and, possibly, burns.
- **Eye Contact** – Irritation and possibly burns.
- **Inhalation** – May cause irritation of the respiratory tract and lungs, resulting in difficulty breathing.

Precautionary Statements

Prevention

- Wash skin thoroughly after handling. (P264)
- Do not eat, drink, or smoke when using this product. (P270)
- Avoid release to the environment. (P273)

Response

- If swallowed: Rinse mouth. (P301+P330)
  - Call a POISON CENTER/doctor/physician. (P312)
  - Collect spillage (P391)

Disposal Considerations

- Dispose of this material and its container to hazardous or special waste collection point in accordance with local, regional, national, and/or international regulation. (P501)

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Appearance and Odor: Green (or aqua) liquid with a slightly acidic odor.

Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as SO_x and iron fumes.

	NFPA Rating	HMIS Rating	4 = Extreme / Severe
Health	**2**	**2**	**3 = High / Serious**
Reactivity	**0**	**0**	**2 = Moderate**
Flammability	**0**	**0**	**1 = Slight**

SECTION 3 – Composition/Information on Ingredients

Chemical Identity: $FeSO_4$
Common Name and Synonyms: Ferrous sulfate; GreenIron

Ingredient	CAS #	Weight Percentage	ACGIH TLV	OSHA PEL	STEL
Water	7732-18-5	81 – 89%	N/A	N/A	N/A
Ferrous Sulfate	7720-78-7	11 - 19%	1 mg/m^3	1 mg/m^3	N/A

SECTION 4 – First Aid Measures

Eye Contact First Aid: Immediately flush eyes for 15 minutes with large amounts of water while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Obtain medical attention IMMEDIATELY after flushing.

Skin Contact First Aid: Flush skin with water. Remove contaminated clothing; wash before reuse. If irritation is still present, seek medical attention IMMEDIATELY.

Inhalation First Aid: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Obtain medical attention IMMEDIATELY.

Ingestion First Aid: Give 1 or 2 glasses of water or milk. Never give anything by mouth to an unconscious individual. Obtain medical attention IMMEDIATELY.

SECTION 5 – Fire Fighting Measures

Flash Point: Not applicable.

Upper/Lower Explosion Limits in Air: Not applicable.

Auto Ignition Temperature: Not applicable.

Extinguishing Media: Will not burn; use materials appropriate for surrounding fire.

Fire and Explosion Hazards: Substance itself does not burn, but may decompose upon heating to produce corrosive and/or toxic fumes, such as SO_x and iron fumes.

Fire Fighting Instructions: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face-piece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers and tanks cool.

Hazardous Product of Decomposition or Combustion: SO_x and iron fumes

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SECTION 6 – Accidental Release Measures

Review safety precautions before proceeding with cleanup. Use appropriate personal protection equipment. Do not touch spilled material. Neutralize spill with lime (calcium hydroxide), limestone (calcium carbonate), or soda ash (sodium carbonate). Restrict access to area until completion of clean up.

Caution: limestone and soda ash will evolve CO2; ventilation should be provided in enclosed areas. Dike area around spill to prevent spreading, and use absorbent material to pick up spill.

CERCLA Reportable Discharge (RQ): 1000 lbs. (454 kg), Based on anhydrous ferrous sulfate. Divide by solution concentration to obtain solution weight.

Disposal: Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Dispose of waste in accordance with applicable federal, state, and local laws.

RCRA: Test waste material for corrosivity, DOO2, prior to disposal.

Steps To Be Taken In Case Material Is Released Or Spilled: Notify the appropriate environmental authorities. Note that spills may need to be reported to the National Response Center ((800) 424-8802)

SECTION 7 – Handling and Storage

Handing: Be cautious of substance residue in empty containers. Act according to precautions and warnings set forth.

Storage: Store in a tightly closed container. Fiberglass, plastic, rubber-lined, or type 316 (stainless steel, or better grades of steel) tanks may be used for storage. Protect from damage and keep separated from incompatible substances in Section 10.

SECTION 8 – Exposure Controls and Personal Protection

Respiratory Protection: Adequate general ventilation should be provided to keep vapor and mists below exposure limits. The exposure limits for some components are listed in Section 2. Wear a NIOSH/OSHA approved respirator with a dust/mist cartridge if there is potential of exposure to mists in excess of applicable limits, in any situation where product vapor or mists may be present, such as in confined spaces.

Eye Protection: Wear splash resistant goggles and/or safety glasses with side shields. Wear a full face shield if possibility of material splashing or spraying exists. Maintain eye wash fountain. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

Skin Protection: Where there is possibility of skin contact, use the following as appropriate, to avoid skin contact: gloves impervious to material, apron, boots, hood, pants, and jacket. Maintain a safety shower with quick opening valves. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

SECTION 9 – Physical and Chemical Properties

Boiling Point:	100°C (212°F)	**pH:**	2-4
Melting Point:	N/A	**Solubility in Water:**	Complete
Specific Gravity:	1.14 – 1.19	**Vapor Pressure:**	N/A
% Volatile:	>70 (Water)	**Evaporation Rate:**	N/A
Vapor Density (Air = 1):	N/A	**Molecular Weight:**	151.91
Appearance:	Green Liquid	**Odor:**	Slightly acrid

SECTION 10 – Stability and Reactivity

Stability: Stable at normal conditions

Polymerization: Will not occur.

Decomposition: Decomposes upon heating to produce corrosive and/or toxic fumes, such as SO_x and iron fumes.

Incompatibility: Avoid oxidizing agents and alkalis. Substance is corrosive to cast iron, carbon steel, copper, paints, and concrete.

SECTION 11 – Toxicological Information

Chronic Effects: Repeated dosage may cause hemosiderosis, including possible damage to liver and pancreas.

Toxicological Data: Anhydrous Ferrous Sulfate Solid Oral LD_{50} (rat) = 319 mg/kg

Carcinogenicity: None of the components of this material are listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

Reproductive Effects: No data available.

Target Organs: liver and pancreas.

SECTION 12 – Ecological Information

Ecotoxicological Information: No ecological effects of this product are known. Safely store product to avoid release to the environment.

SECTION 13 – Disposal Considerations

Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a substance should be classified as a hazardous waste at the time of disposal. This is due to the fact that product use, transformation, synthesis, mixtures, etc. may change the nature of the product. Product containers should be thoroughly emptied before disposal. Dispose of waste in accordance with applicable federal, state, and local laws.

SECTION 14 – Transportation Information

DOT Shipping Name: Corrosive Liquid, Acidic, Inorganic, NOS (Contains Ferrous Sulfate)

Hazard Class: 8- Corrosive

UN Number: UN 3264

Packing Group: III

Reportable Quantity: 1000 lbs (454 kg)

SECTION 15 – Regulatory Information

OSHA: Hazardous Liquid – 29 CFR 1920.1200
OSHA Process Safety (29 CFR 1910.119): No

CERCLA: Hazardous Substance – Reportable Quantity (RQ) = 1000 lbs (454 kg)

SARA Regulations: 313 and 40 CFR 372: No

SARA Hazard Categories, SARA Sections 311/312 (40 CFR 370.21):
Acute: Yes; Chronic: No; Fire: No; Reactive: No; Sudden Release: No

Clean Water Act: Designated as a hazardous substance under Section 311(b)(2)(A) of the Federal Water Pollution Control Act; ferrous sulfate is also regulated by the Clean Water Act Amendments of 1977 and 1978. This chemical is subject to regulations regarding its discharge.

TSCA Inventory Status: Yes

California Proposition 65: No

Right-To-Know Lists: Massachusetts, California, Pennsylvania, New Jersey. This substance does not contain nor is manufactured with ozone-depleting substances.

Canadian WHIMS Classification: E

SECTION 16 – Other Information

It is the responsibility of the user to obtain and use the most recent version of the Data Sheets. Each Data Sheet relates only to the specific product designated therein and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information are beyond the control of WGI, who expressly disclaims any and all liability as to any consequential damages or results obtained or arising from any use of the products or the information contained in the Data Sheets. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE DATA SHEETS OR THE RELATED PRODUCTS.