



## Safety Data Sheet

### Section 1 - Chemical Product and Company Identification

**Product Name:** Ferrous Sulfate Heptahydrate  
CAS No.: 7782-63-0

**Product Use:** Commercial manufacturing; soil amendment to correct iron chlorosis in plants and to reduce soil alkalinity; soil remediation; wastewater odor control

**Synonym:** Ferrous sulfate; Copperas; Iron (II) Sulfate

**Supplier Information:** Administrative Office  
Agro-Iron, Inc.  
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Lakeland, FL 33813  
Tel: +1-863-648-9555 Fax: +1-863-648-9556  
[Sales@Agro-Iron.com](mailto:Sales@Agro-Iron.com)

**Emergency Number:** For Spill, Leak, Fire, Exposure, or Accident  
Call CHEMTREC Day or Night  
1-800-424-9300 CCN800481

### Section 2 – Hazard Identification

Emergency Overview:



#### Warning

Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation

**Precautionary Statements:** Wash skin thoroughly after handling  
Do not eat, drink, or smoke when handling  
Wear protective gloves / eye protection  
Do not ingest

### Section 3 - Composition / Information On Ingredients

Ingredient	CAS #	Percentage	Formula: $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$
Water	7732-18-5	< 4%	
Ferrous Sulfate Heptahydrate	7782-63-0	96 – 100%	

## Section 4 - First Aid Measures

- General advice:** Consult a physician. Show this safety data sheet to the doctor in attendance.
- Eyes:** Check for and remove any contact lenses. Flush eyes for 15 minutes with plenty of water while holding eyelids apart and consult a physician.
- Skin:** If on skin, wash with plenty of soap and water. If skin irritation persists, get medical advice/ attention.
- Inhalation:** Remove from exposure. Move to fresh air. Flush nose with water. Seek medical attention in case of continued irritation.
- Ingestion:** Do not induce vomiting unless directed by physician. Wash out mouth with water if person is conscious. Never give anything by mouth to an unconscious person.

**Always seek medical attention if symptoms persist.**

## Section 5 – Fire Fighting Measures

<b>Flash Point</b>	N/A <sup>1</sup>	<b>Flammable Limits in Air</b>	UEL: N/A <sup>1</sup> LEL: N/A <sup>1</sup>
<b>Special Fire and Explosion Hazards</b>	Does not burn at normal temperatures. Thermal decomposition creates toxic sulfur oxides and iron oxides. Not considered an explosion hazard.	<b>Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Special Fire Fighting Instructions</b>		Wear self-contained breathing apparatus if necessary.	
	<b>NFPA</b>		<b>HMIS</b>
<b>Health</b>	2		2
<b>Reactivity</b>	0		0
<b>Flammability</b>	0		0
<b>4 = Extreme/Severe    3 = High/Serious    2 = Moderate    1 = Slight    0 = Stable</b>			

## Section 6 – Accidental Release Measures

**Review safety precautions before proceeding with cleanup.**

**Spill Response:** Use appropriate personal protection equipment. Avoid contamination of soil, and prevent spill residue from running to groundwater or storm drains. Spilled product should be contained, collected and re-used if there is no contamination.

**Waste Disposal:** As shipped, the product is not considered a hazardous waste by the EPA. 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 because the product's use, transformation, synthesis, mixtures, etc. may change the nature of the product. Dispose of any contaminated material in accordance with applicable federal, state, and local regulations.

**Reportable Quantity Under CERCLA:** 1,000 lbs.

## Section 7 – Handling and Storage

**Handling Requirements:** Ensure good ventilation/exhaust in the work environment. Use proper protective equipment when handling and applying. Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

**Storage Conditions:** Store under dry conditions. Protect from heat and direct sunlight.

**Packaging:** Suitable material for containers and pipes: Plastics and steel

<b>Section 8 – Exposure Control / Personal Protection</b>			
	<b>ACGIH TLV</b>	<b>OSHA PEL</b>	<b>NIOSH REL</b>
Ferrous Sulfate Heptahydrate CAS No.: 7782-63-0	1 mg/m <sup>3</sup>	1 mg/ m <sup>3</sup>	1 mg/ m <sup>3</sup>

**Engineering Measures:** Minimize dust accumulation. Use good ventilation/exhaust, especially in confined areas, to keep below OSHA TLV of 1 mg/m<sup>3</sup>. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Eyes and Face:** Safety glasses with side shields or goggles to minimize dust from entering eyes.

**Respiratory:** None required where adequate ventilation conditions exist. Adequate ventilation should be provided to keep dust below exposure limits. Wear appropriate mask or NIOSH/MSHA approved particulate respirator when dust is prevalent.

**Skin and Body:** Where contact is likely, wear chemical resistant gloves, rubber boots, and coveralls. Nitrile gloves are recommended. Thoroughly wash hands after handling.

**Shoes:** Wear closed toe shoes. Safety shoes are not necessary

**General:** Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material including changing and laundering work clothing after use. Wash hands thoroughly after handling material. Do not eat, drink, or smoke in work areas.

<b>Section 9 - Physical and Chemical Properties</b>			
<b>Physical State</b>	Solid	<b>Color</b>	Blue-Green
<b>Appearance</b>	Blue Green Crystals	<b>pH (apparent)</b>	3.0–4.0 @ 50g/l @ 77°F
<b>Melting Point</b>	147 °F	<b>Solubility in Water</b>	Insoluble
<b>Freezing Point</b>	N/F <sup>2</sup>	<b>Flash Point</b>	No data available
<b>Boiling Point/Range</b>	N/A <sup>1</sup>	<b>Vapor Pressure</b>	N/A <sup>1</sup>
<b>Bulk Density</b>	1 mt/m <sup>3</sup>	<b>Evaporation Rate</b>	No data available
<b>% Volatile</b>	No data available	<b>Molecular Weight</b>	N/F <sup>2</sup>
<b>Vapor Density (Air = 1)</b>	No data available	<b>Odor</b>	No data available
<b>Odor Threshold</b>	No data available	<b>Upper/Lower Flammability</b>	No data available
<b>Flammability</b>	No data available	<b>Decomposition Temperature</b>	No data available
<b>Autoignition Temperature</b>	No data available	<b>Partition Coefficient: n-octanol/water</b>	No data available

### **Section 10 – Stability and Reactivity**

**Reactivity:** Stable under normal temperatures and storage conditions

**Decomposition Products:** No decomposition if used and stored according to specifications. Loss of constitutional water on heating. In the event of a fire, see Section 5.

**Incompatibility:** Strong oxidizing agents; strong bases; sodium nitrate

**Polymerization:** No data available.

## Section 11 – Toxicological Information

### Information on toxicological effects

#### Acute toxicity:

LD/LC50 values that are relevant for classification:

Data from the Key Studies for iron sulfates and iron chlorides:

Oral	LD50	132 - 881 mg Fe/kg (rat) (OECD 423)
Dermal	LD50	>400 mg Fe/kg (rat) (OECD 402)
Inhalative	LC50	no relevant data available

Data for ferrous sulfate heptahydrate:

Oral	LD50	657 - 4390 mg/kg (rat) (derived)
LD50		>2000 mg/kg (rat) (OECD 401)
Dermal	LD50	>1992 mg/kg (rat) derived)
Inhalative	LC50	no relevant data available

#### Primary irritant effect:

on the skin:

on the eye:

OECD 404: Irritant for skin and mucous membranes.

OECD 405: Irritant effect.

#### Sensitization:

OECD 429 (LLNA-test): No sensitizing effects.

#### Subacute to chronic toxicity:

Data of the Key Studies for iron sulfates and iron chlorides:

Oral	NOAEL	57 - 65 mg Fe/kg/d (rat, 90 days) (not according to OECD)
Dermal	NOAEL	no relevant data available
Inhalative	NOAEC	no relevant data available

Data for ferrous sulfate heptahydrate

Oral	NOAEL	284 - 324 mg/kg/d (rat, 90 days) (derived)
	NOAEL	100 mg/kg/d (rat, 49 days)

Dermal	NOAEC	no relevant data available
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Inhalative	NOELL	no relevant data available
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#### CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

There are no indications of CMR effects.

**Specific target organ toxicity (STOT):** No specific target organ toxicity according to the criteria defined in Regulation (EC) No. 1272/2008.

#### Aspiration hazard

Not relevant

#### PNECs:

Iron is an essential trace element for fish, aquatic invertebrates and plants. A direct toxicity could not be demonstrated in tests. Therefore, no PNEC was derived.

## Section 12 – Ecological Information

**Ecotoxicity:** Data are experimentally not accessible. Under standard test conditions, the ferrous ion, Fe<sup>2+</sup>, is unstable and is oxidized to the ferric, Fe<sup>3+</sup>, ion. Ferric iron salts have a high rate of conversion to insoluble ferric hydroxide, in consequence, Fe<sup>2+</sup> is to a great extent removed from the test system. Furthermore, iron plays an important role in biological processes, with iron homeostasis being under strict control. In conclusion, iron is not considered to be toxic to the aquatic environment under normal conditions.

**Persistence and Degradability:** Not relevant for inorganic substances

**Bioaccumulative Potential:** Iron is a bioessential trace element for organisms and plays an important role in biological processes. The uptake of iron is strictly controlled by homeostatic process. In conclusion, bioaccumulation poses no concern.

**Mobility in Soil:** The substance is immobile in soil.

## Section 13 – Disposal Considerations

### US EPA Waste Number & Descriptions

**A: General Product Information:** As shipped, product is not considered a hazardous waste by the EPA. Wastes from this compound must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

**B: Component Waste Numbers:** No EPA Waste Numbers are applicable for wastes of Ferrous Sulfate Heptahydrate. Dispose of in accordance with all applicable Federal, State and local regulations.

## Section 14 - Transportation Information

<b>DOT (US)</b>	UN Number: 3077	Class: 9	Packing group: III
Proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Ferrous Sulfate Heptahydrate) Reportable Quantity (RQ): 1,000 lbs Marine pollutant: No Poison Inhalation Hazard: No		
<b>IMDG</b>	Not dangerous goods.		
<b>IATA</b>	Not dangerous goods.		



## Section 15 - Regulatory Information

### US Federal Regulations

**SARA 313:** SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA + Title III, Section 313.

**SARA 311/312 Hazard Categories:** Acute health hazard  
Chronic health hazard

**CWA (Clean Water Act)** Section 311 Hazardous Substances (40 CFR 117.3)  
Sulfuric acid, Iron (2) salt (1:1), Heptahydrate  
Reportable quantity: 1000 lbs.

**CERCLA** (40 CFR 302.4)  
Sulfuric acid, Iron (2) salt (1:1), Heptahydrate  
Reportable quantity: 1000 lbs.

## Section 16 - Other Information

**IMPORTANT!! Read this SDS before use or disposal of this product. Distribute the information to employees and any other persons who could be exposed to the product to ensure that they are aware of the information before use or other exposure.**

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This SDS has been written in accordance with OSHA's Hazard Communication Standard 2012

**ABBREVIATIONS:**      **N/A<sup>1</sup> = Not Applicable**                      **N/F<sup>2</sup> = None Found**

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