

## SAFETY DATA SHEET

Creation Date 21-Dec-2009

Revision Date 18-Jan-2018

Revision Number 4

### 1. Identification

**Product Name** Ferrous sulfate heptahydrate

**Cat No. :** I146-3; I146-10; I146-500; I146-500LC; I149-3

**CAS-No** 7782-63-0

**Synonyms** Iron (II) sulfate heptahydrate (Crystalline/Certified ACS/USP/FCC)

**Recommended Use** Laboratory chemicals.

**Uses advised against** Not for food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|                                                      |            |
|------------------------------------------------------|------------|
| Acute oral toxicity                                  | Category 4 |
| Skin Corrosion/irritation                            | Category 2 |
| Serious Eye Damage/Eye Irritation                    | Category 2 |
| Specific target organ toxicity (single exposure)     | Category 3 |
| Target Organs - Central nervous system (CNS).        |            |
| Specific target organ toxicity - (repeated exposure) | Category 2 |
| Target Organs - Kidney, Liver, Blood.                |            |

#### Label Elements

##### **Signal Word**

Warning

##### **Hazard Statements**

Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation  
May cause drowsiness or dizziness  
May cause damage to organs through prolonged or repeated exposure



**Precautionary Statements**

**Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area

**Response**

Get medical attention/advice if you feel unwell

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor/physician if you feel unwell

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
 If skin irritation occurs: Get medical advice/attention  
 Take off contaminated clothing and wash before reuse

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 If eye irritation persists: Get medical advice/attention

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 Rinse mouth

**Storage**

Store in a well-ventilated place. Keep container tightly closed  
 Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

**3. Composition/Information on Ingredients**

| Component                      | CAS-No    | Weight % |
|--------------------------------|-----------|----------|
| Iron (II) Sulfate heptahydrate | 7782-63-0 | > 99     |
| Ferrous sulfate                | 7720-78-7 | -        |

**4. First-aid measures**

|                       |                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>General Advice</b> | If symptoms persist, call a physician.                                                                            |
| <b>Eye Contact</b>    | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.   |
| <b>Skin Contact</b>   | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| <b>Inhalation</b>     | Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.        |

|                                            |                                                                                                       |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>Ingestion</b>                           | Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur. |
| <b>Most important symptoms and effects</b> | None reasonably foreseeable.                                                                          |
| <b>Notes to Physician</b>                  | Treat symptomatically                                                                                 |

**5. Fire-fighting measures**

|                                         |                          |
|-----------------------------------------|--------------------------|
| <b>Unsuitable Extinguishing Media</b>   | No information available |
| <b>Flash Point</b>                      | Not applicable           |
| <b>Method -</b>                         | No information available |
| <b>Autoignition Temperature</b>         | No information available |
| <b>Explosion Limits</b>                 |                          |
| <b>Upper</b>                            | No data available        |
| <b>Lower</b>                            | No data available        |
| <b>Sensitivity to Mechanical Impact</b> | No information available |
| <b>Sensitivity to Static Discharge</b>  | No information available |

**Specific Hazards Arising from the Chemical**  
 Thermal decomposition can lead to release of irritating gases and vapors.

**Hazardous Combustion Products**  
 Sulfur oxides Thermal decomposition can lead to release of irritating gases and vapors

**Protective Equipment and Precautions for Firefighters**  
 As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 2             | 1                   | 1                  | N/A                     |

**6. Accidental release measures**

|                                             |                                                                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal Precautions</b>                 | Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation.                                            |
| <b>Environmental Precautions</b>            | Should not be released into the environment.                                                                                     |
| <b>Methods for Containment and Clean Up</b> | Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal. |

**7. Handling and storage**

|                 |                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. |
| <b>Storage</b>  | Keep containers tightly closed in a dry, cool and well-ventilated place.                                                                                            |

**8. Exposure controls / personal protection**

**Exposure Guidelines**

| Component                      | ACGIH TLV                | OSHA PEL                           | NIOSH IDLH               | Mexico OEL (TWA)                                      |
|--------------------------------|--------------------------|------------------------------------|--------------------------|-------------------------------------------------------|
| Iron (II) Sulfate heptahydrate | TWA: 1 mg/m <sup>3</sup> | (Vacated) TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> |
| Ferrous sulfate                | TWA: 1 mg/m <sup>3</sup> | (Vacated) TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> |

*Legend*

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures** Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

**Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection** Long sleeved clothing.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

|                                               |                          |
|-----------------------------------------------|--------------------------|
| <b>Physical State</b>                         | Solid                    |
| <b>Appearance</b>                             | Blue green               |
| <b>Odor</b>                                   | Odorless                 |
| <b>Odor Threshold</b>                         | No information available |
| <b>pH</b>                                     | 3 - 5 (5 %)              |
| <b>Melting Point/Range</b>                    | 64 °C / 147.2 °F         |
| <b>Boiling Point/Range</b>                    | 300 °C / 572 °F          |
| <b>Flash Point</b>                            | Not applicable           |
| <b>Evaporation Rate</b>                       | Not applicable           |
| <b>Flammability (solid,gas)</b>               | No information available |
| <b>Flammability or explosive limits</b>       |                          |
| <b>Upper</b>                                  | No data available        |
| <b>Lower</b>                                  | No data available        |
| <b>Vapor Pressure</b>                         | No information available |
| <b>Vapor Density</b>                          | Not applicable           |
| <b>Specific Gravity</b>                       | 1.898                    |
| <b>Solubility</b>                             | Partly soluble in water  |
| <b>Partition coefficient; n-octanol/water</b> | No data available        |
| <b>Autoignition Temperature</b>               | No information available |
| <b>Decomposition Temperature</b>              | No information available |
| <b>Viscosity</b>                              | Not applicable           |
| <b>Molecular Formula</b>                      | FeSO4.7H2O               |
| <b>Molecular Weight</b>                       | 278.01                   |

**10. Stability and reactivity**

**Reactive Hazard** None known, based on information available

**Stability** Air sensitive. Moisture sensitive.

**Conditions to Avoid** Avoid dust formation. Incompatible products. Excess heat. Exposure to air. Exposure to moist air or water.

**Incompatible Materials** Strong oxidizing agents, Strong bases

**Hazardous Decomposition Products** Sulfur oxides, Thermal decomposition can lead to release of irritating gases and vapors

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Acute Toxicity**

**Product Information**

**Component Information**

| Component       | LD50 Oral                | LD50 Dermal | LC50 Inhalation |
|-----------------|--------------------------|-------------|-----------------|
| Ferrous sulfate | LD50 = 319 mg/kg ( Rat ) | Not listed  | Not listed      |

**Toxicologically Synergistic Products** No information available

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

**Irritation** Irritating to eyes and skin

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component                      | CAS-No    | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|--------------------------------|-----------|------------|------------|------------|------------|------------|
| Iron (II) Sulfate heptahydrate | 7782-63-0 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ferrous sulfate                | 7720-78-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** Mutagenic effects have occurred in experimental animals.

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Central nervous system (CNS)

**STOT - repeated exposure** Kidney Liver Blood

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains.

| Component       | Freshwater Algae | Freshwater Fish                                                                                            | Microtox   | Water Flea                                                                                  |
|-----------------|------------------|------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------|
| Ferrous sulfate | Not listed       | LC50: = 925 mg/L, 96h static (Poecilia reticulata)<br>LC50: = 0.56 mg/L, 96h semi-static (Cyprinus carpio) | Not listed | EC50: 6.15 - 9.26 mg/L, 48h Static (Daphnia magna)<br>EC50: = 152 mg/L, 48h (Daphnia magna) |

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available.

**Mobility** No information available.

**13. Disposal considerations**

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

**14. Transport information**

**DOT** Not regulated  
**TDG** Not regulated  
**IATA** Not regulated  
**IMDG/IMO** Not regulated

**15. Regulatory information**

All of the components in the product are on the following Inventory lists: X = listed

**International Inventories**

| Component                      | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|--------------------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Iron (II) Sulfate heptahydrate | -    | -   | -    | -         | -      |     | X     | X    | X    | X     | -    |
| Ferrous sulfate                | X    | X   | -    | 231-753-5 | -      |     | X     | X    | X    | X     | X    |

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

**TSCA 12(b)** Not applicable

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)**

| Component                      | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|--------------------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Iron (II) Sulfate heptahydrate | X                          | -                           | -                      | -                         |
| Ferrous sulfate                | X                          | 1000 lb                     | -                      | -                         |

**Clean Air Act** Not applicable

**OSHA Occupational Safety and Health Administration**  
 Not applicable

**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)

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|-----------|--------------------------|----------------|
|-----------|--------------------------|----------------|

|                                |         |   |
|--------------------------------|---------|---|
| Iron (II) Sulfate heptahydrate | 1000 lb | - |
| Ferrous sulfate                | 1000 lb | - |

**California Proposition 65** This product does not contain any Proposition 65 chemicals

**U.S. State Right-to-Know Regulations**

| Component                      | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|--------------------------------|---------------|------------|--------------|----------|--------------|
| Iron (II) Sulfate heptahydrate | X             | -          | X            | -        | X            |
| Ferrous sulfate                | X             | X          | X            | -        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**16. Other information**

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 21-Dec-2009  
**Revision Date** 18-Jan-2018  
**Print Date** 18-Jan-2018  
**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**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 SDS**