

# Material Safety Data Sheet

## Iron(II) sulfate heptahydrate

ACC# 09870

### Section 1 - Chemical Product and Company Identification

MSDS Name: Iron(II) sulfate heptahydrate

Catalog Numbers: I146-10, I146-3, I146-3LC, I146-500, I146-500LC, I149-3

Synonyms: Green vitrol; Ferrous sulfate heptahydrate; Iron protosulfate.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

### Section 2 - Composition, Information on Ingredients

| CAS#      | Chemical Name                 | Percent | EINECS/ELINCS |
|-----------|-------------------------------|---------|---------------|
| 7782-63-0 | Iron(II) sulfate heptahydrate | >99     | unlisted      |

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: blue-green solid.

**Warning!** Harmful if swallowed. Causes eye and skin irritation. May cause respiratory tract irritation.

Target Organs: Blood, kidneys, central nervous system, liver, gastrointestinal system, eyes, skin.

#### Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May be harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. May cause nausea and vomiting.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.

Chronic: May cause liver and kidney damage. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Chronic exposure may cause blood effects. Exposure to high concentrations may cause central nervous system depression.

Animal studies have reported the development of tumors. Oral doses of 960 mg/kg given intermittently over a 9 week period produced jaundice in

### Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. Get medical aid immediately. Call a poison control center.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician: Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 1

## Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

Handling: Use with adequate ventilation. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale.

Storage: Store in a cool, dry place. Store in a tightly closed container. Store under an inert atmosphere.

## Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

| Chemical Name    | ACGIH  | NIOSH  | OSHA - Final PELs |
|------------------|--|--|-------------------|
| Iron(II) sulfate | 1 mg/m <sup>3</sup> TWA (as Fe)<br>(listed under Iron salts) | 1 mg/m <sup>3</sup> TWA (as Fe)<br>(listed under Iron salts) | none listed       |

|                           |  |  |             |
|---------------------------|--|--|-------------|
| heptahydrate              | (soluble)).  | (soluble)).  |             |
| Ferrous sulfate anhydrous | 1 mg/m <sup>3</sup> TWA (as Fe)<br>(listed under Iron salts<br>(soluble)). | 1 mg/m <sup>3</sup> TWA (as Fe)<br>(listed under Iron salts<br>(soluble)). | none listed |

OSHA Vacated PELs: Iron(II) sulfate heptahydrate: No OSHA Vacated PELs are listed for this chemical. Ferrous sulfate anhydrous: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: blue-green

Odor: odorless

pH: 3-5 (5% aq. sol.)

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Negligible.

Viscosity: Not available.

Boiling Point: 300 deg C

Freezing/Melting Point: 64 deg C

Decomposition Temperature: > 300 deg C

Solubility: 48.6g/100g water at 50C

Specific Gravity/Density: 1.898

Molecular Formula: FeSO<sub>4</sub>·7H<sub>2</sub>O

Molecular Weight: 278.01

## Section 10 - Stability and Reactivity

Chemical Stability: Air sensitive. Moisture sensitive.

Conditions to Avoid: Incompatible materials, dust generation, exposure to air, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Strong oxidizing agents, strong bases.

Hazardous Decomposition Products: Oxides of sulfur, oxides of iron.

Hazardous Polymerization: Has not been reported.

## Section 11 - Toxicological Information

RTECS#:

CAS# 7782-63-0: NO8510000

CAS# 7720-78-7: N08500000

LD50/LC50:

CAS# 7782-63-0:

Oral, mouse: LD50 = 1520 mg/kg;

CAS# 7720-78-7:

Oral, mouse: LD50 = 680 mg/kg;

Oral, rat: LD50 = 319 mg/kg;

Oral, rat: LD50 = 533 mg/kg;

Carcinogenicity:

CAS# 7782-63-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7720-78-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Tumorigenic effects have been reported in experimental animals.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: Mutagenic effects have occurred in humans.

Neurotoxicity: No information available.

Other Studies:

## Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

## Section 14 - Transport Information

|                | US DOT        | Canada TDG    |
|----------------|---------------|---------------|
| Shipping Name: | Not Regulated | Not Regulated |
| Hazard Class:  |               |               |
| UN Number:     |               |               |
| Packing Group: |               |               |

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 7782-63-0 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 7720-78-7 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 7782-63-0: 1000 lb final RQ (listed under Ferrous sulfate); 454 kg final RQ (listed under

F CAS# 7720-78-7: 1000 lb final RQ; 454 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPO.

#### SARA Codes

CAS # 7782-63-0: immediate.

CAS # 7720-78-7: immediate.

Section 313 No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

#### Clean Water Act:

CAS# 7782-63-0 is listed as a Hazardous Substance under the CWA. CAS# 7720-78-7 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

CAS# 7782-63-0 can be found on the following state right to know lists: California, (listed as Iron salts (soluble)), Pennsylvania, Minnesota, (listed as Iron salts (soluble)), Massachusetts.

CAS# 7720-78-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Iron salts (soluble)), Massachusetts.

#### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

### European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 22 Harmful if swallowed.

R 36/38 Irritating to eyes and skin.

## Safety Phrases:

S 46 If swallowed, seek medical advice immediately and show this container or label.

## WGK (Water Danger/Protection)

CAS# 7782-63-0: No information available.

CAS# 7720-78-7: 1

## Canada - DSL/NDSL

CAS# 7720-78-7 is listed on Canada's DSL List.

## Canada - WHMIS

This product has a WHMIS classification of D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

## Canadian Ingredient Disclosure List

CAS# 7782-63-0 (listed as Iron salts (soluble)) is listed on the Canadian Ingredient Disclosure List.

CAS# 7720-78-7 is listed on the Canadian Ingredient Disclosure List.

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| <b>Section 16 - Additional Information</b> |
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MSDS Creation Date: 12/04/1997

Revision #8 Date: 3/04/2008

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