

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:** S74260, S74262, I146-10, I146-3, I146-3LC, I146-500, I149-3, NC9654173, XXI146150KG**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

Hazard Symbols: XN**Risk Phrases:** 22 36/37/38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: blue-green solid. **Caution!** May cause eye and skin irritation. May cause respiratory tract irritation. May be harmful if swallowed. Air sensitive. Moisture sensitive.

Target Organs: Liver, gastrointestinal system, eyes, skin, mucous membranes.

Potential Health Effects**Eye:** May cause mild eye irritation.**Skin:** May cause skin irritation.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation. May be harmful if swallowed. Ingestion may result in irritation of the esophagus, bleeding of the stomach and ulcer formation. G.I. disturbances (e.g., gastric distress, colic, constipation, diarrhea) may occur if swallowed. In children, ingestion of large quantities of ferrous sulfate may cause vomiting, vomiting of blood, liver damage, rapid heart rate, peripheral vascular collapse.

Inhalation: May cause respiratory tract irritation.

Chronic: Repeated exposure may increase iron levels in the liver, spleen and lymphatic system. Damage may occur in the spleen and liver. Oral doses of 960 mg/kg given intermittently over a 9 week period produced jaundice in humans.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

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. Substance is noncombustible.

Extinguishing Media: Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 0; Instability: 0

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. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid breathing dust.

Storage: Do not store in direct sunlight. Store in a cool, dry area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Iron(II) sulfate heptahydrate	none listed	none listed	none listed
Ferrous sulfate anhydrous	none listed	none listed	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: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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 (dec)

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: FeSO₄·7H₂O

Molecular Weight: 278.01

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions. FeSO₄·7H₂O oxidizes in moist air forming a brown coating of basic ferric sulfate. Aqueous solutions are oxidized slowly by air when cold, rapidly when hot; rate of oxidation increased by addition of base or exposure to light.

Conditions to Avoid: Light, dust generation, moisture, excess heat, prolonged exposure to air.

Incompatibilities with Other Materials: Strong oxidizing agents, bases, lead acetate, silver salts, lime water, carbonates, potassium tartrate, gold salts, potassium iodide, sodium borate, sodium tartrate, tannin.

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: NO8500000

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;

Carcinogenicity:

CAS# 7782-63-0: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA. CAS# 7720-78-7: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: See actual entry in RTECS for complete information.

Neurotoxicity: No information available.

Mutagenicity: See actual entry in RTECS for complete information.

Other Studies: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

No information available.

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	IATA	RID/ADR	IMO	Canada TDG
Shipping Name:	No information available.				FERROUS SULFATE
Hazard Class:					9.2
UN Number:					UN9125
Packing Group:					III
Additional Info:					REGULATED LIMIT 50 KG

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.

SARA

CERCLA Hazardous Substances and corresponding RQs

CAS# 7782-63-0: 1000 lb final RQ (Listed under 'Ferrous sulfate'); 454 kg final RQ (Listed 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 TPQ.

SARA Codes

CAS # 7782-63-0: acute. CAS # 7720-78-7: acute.

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: Pennsylvania, Massachusetts.

CAS# 7720-78-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Massachusetts.

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 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36 Wear suitable protective clothing.

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.

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.

Exposure Limits

CAS# 7782-63-0: OEL-DENMARK:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-FINLAND:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-THE NETHERLANDS:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-SWITZERLAND:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-UNITED KINGDOM:TWA 1 mg(Fe)/m3;STEL 2 mg(Fe)/m3 JANUARY 1993

CAS# 7720-78-7: OEL-DENMARK:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-FINLAND:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-THE NETHERLANDS:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-SWITZERLAND:TWA 1 mg(Fe)/m3 JANUARY 1993 OEL-UNITED KINGDOM:TWA 1 mg(Fe)/m3;STEL 2 mg(Fe)/m3 JANUARY 1993 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

Section 16 - Additional Information

MSDS Creation Date: 12/04/1997

Revision #4 Date: 11/20/2001

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