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**MSDS**

**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865

**MALLINCKRODT**



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 202-483-7616

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

# FERROUS SULFATE

MSDS Number: F1802 --- *Effective Date: 03/01/00*

## 1. Product Identification

**Synonyms:** Iron (II) sulfate (1:1), heptahydrate; sulfuric acid, iron (2+) salt (1:1), heptahydrate

**CAS No.:** 7720-78-7

**Molecular Weight:** 278

**Chemical Formula:** FeSO<sub>4</sub> 7H<sub>2</sub>O

**Product Codes:**

J.T. Baker: 2070, 2074, 2075, 5830

Mallinckrodt: 5055, 5056, 5401, 5572

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ferrous Sulfate	7720-78-7	99 - 100%	Yes

## 3. Hazards Identification

### Emergency Overview

**WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE LIVER.**

**J.T. Baker SAF-T-DATA<sup>(tm)</sup> Ratings** (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)

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### **Potential Health Effects**

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**Inhalation:**

Causes irritation to the respiratory tract. Symptoms may include coughing, shortness of breath.

**Ingestion:**

Low toxicity in small quantities but larger dosages may cause nausea, vomiting, diarrhea, and black stool. Pink urine discoloration is a strong indicator of iron poisoning. Liver damage, coma, and death from iron poisoning has been recorded. Smaller doses are much more toxic to children.

**Skin Contact:**

Causes irritation to skin. Symptoms include redness, itching, and pain.

**Eye Contact:**

Causes irritation, redness, and pain.

**Chronic Exposure:**

Severe or chronic ferrous sulfate poisonings may damage blood vessels. Large chronic doses cause rickets in infants. Chronic exposure may cause liver effects. Prolonged exposure of the eyes may cause discoloration.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

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## **4. First Aid Measures**

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## **5. Fire Fighting Measures**

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

Use protective clothing and breathing equipment appropriate for the surrounding fire.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Maintain a constant temperature not to exceed 24 degrees centigrade (75 degrees fahrenheit). Fluctuating temperatures causes product oxidation. Do not use this product if coated with brownish-yellow basic ferric sulfate. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

-ACGIH Threshold Limit Value (TLV):

1 mg/m<sup>3</sup> (TWA) soluble iron salt as Fe

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

Blue green crystals.

### **Odor:**

Odorless.

**Solubility:**  
48.6 g/100 g water @ 50C (122F)

**Density:**  
1.90

**pH:**  
No information found.

**% Volatiles by volume @ 21C (70F):**  
0

**Boiling Point:**  
> 300C (> 572F) Decomposes.

**Melting Point:**  
57C (135F) Loses water

**Vapor Density (Air=1):**  
No information found.

**Vapor Pressure (mm Hg):**  
No information found.

**Evaporation Rate (BuAc=1):**  
No information found.

## 10. Stability and Reactivity

**Stability:**  
Stable under ordinary conditions of use and storage. Loses water in dry air and oxidizes upon exposure to moisture, forming a brown coating of extremely corrosive basic ferric sulfate.

**Hazardous Decomposition Products:**  
Burning may produce sulfur oxides.

**Hazardous Polymerization:**  
This substance does not polymerize.

**Incompatibilities:**  
Alkalis, soluble carbonates, and oxidizing materials. Reacts in moist air to form ferric sulfate.

**Conditions to Avoid:**  
Moisture.

## 11. Toxicological Information

Oral rat LD50: 319 mg/kg. Investigated as a tumorigen and mutagen.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Ferrous Sulfate (7720-78-7)	No	No	None

## 12. Ecological Information

**Environmental Fate:**  
No information found.

**Environmental Toxicity:**  
No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
-
Ingredient                                     TSCA   EC    Japan  Australia
-----
Ferrous Sulfate (7720-78-7)                   Yes   Yes   Yes    Yes

-----\Chemical Inventory Status - Part 2\-----
-
Ingredient                                     Korea  --Canada--
                                     Korea  DSL    NDSL   Phil.
-----
Ferrous Sulfate (7720-78-7)                   Yes   Yes   No     Yes

-----\Federal, State & International Regulations - Part 1\-----
-
                                     -SARA 302-   -----SARA 313-----
Ingredient                                     RQ    TPQ    List   Chemical
Catg.
-----
Ferrous Sulfate (7720-78-7)                   No   No     No     No

-----\Federal, State & International Regulations - Part 2\-----
-
Ingredient                                     CERCLA  -RCRA-  -TSCA-
                                     CERCLA  261.33  8(d)
-----
Ferrous Sulfate (7720-78-7)                   1000   No     No
```

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Solid)

**Australian Hazchem Code:** No information found.

**Poison Schedule:** No information found.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

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## 16. Other Information

**NFPA Ratings:** Health: 1 Flammability: 0 Reactivity: 0

**Label Hazard Warning:**

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS THE LIVER.

**Label Precautions:**

Avoid contact with eyes, skin and clothing.  
Wash thoroughly after handling.  
Avoid breathing dust.  
Keep container closed.  
Use only with adequate ventilation.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent. Bulk pharmaceutical chemical.

**Revision Information:**

No changes.

**Disclaimer:**

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**Prepared by:** Strategic Services Division  
Phone Number: (314) 539-1600 (U.S.A.)