



SIGMA-ALDRICH

## Material Safety Data Sheet

Date Printed: 05/19/2007  
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Version 1.70

### Section 1 - Product and Company Information

**Product Name** Iron(III) chloride, reagent grade, 97%  
**Product Number** 157740  
**Brand** Sigma-Aldrich

**Company** Sigma-Aldrich  
**Address** 3050 Spruce Street  
**City, State, Zip, Country** SAINT LOUIS, MO 63103 US  
**Technical Phone:** 800-325-5832  
**Fax:** 800-325-5052  
**Emergency Phone:** 314-776-6555

### Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
FERRIC CHLORIDE ANHYDROUS	7705-08-0	No	231-729-4	

**Formula** FeCl<sub>3</sub>  
**Synonyms** Chlorure perrique (French), Flores martis, Iron chloride, Iron(III) chloride, Iron trichloride, Perchlorure de fer (French)

### Section 3 - Hazards Identification

**Emergency Overview**  
Toxic (USA) Harmful (EU).  
Harmful if swallowed. Risk of serious damage to eyes.

**HMIS Rating**  
Health: 2 Flammability: 0 Reactivity: 1

**NFPA Rating**  
Health: 2 Flammability: 0 Reactivity: 1

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

**Oral Exposure**  
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

**Inhalation Exposure**  
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

**Dermal Exposure**  
In case of contact, immediately wash skin with soap and copious amounts of water.

**Eye Exposure**  
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

### Section 5 - Fire Fighting Measures

**Autoignition Temp:** N/A

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

#### Procedure(s) of Personal Precaution(s)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

#### Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

#### Storage

##### Suitable

Keep tightly closed. Store under nitrogen.

#### Special Requirements

Hygroscopic.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Safety shower and eye bath. Mechanical exhaust required.

#### Personal Protective Equipment

##### Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

##### Hand

Compatible chemical-resistant gloves.

##### Eye

Chemical safety goggles.

#### General Hygiene Measures

Wash thoroughly after handling.

#### Exposure Limits, RTECS

##### Country

USA

USA

New Zealand

**Remarks:** check ACGIH TLV

##### Source

ACGIH

MSHA Standard-air

OEL

##### Type

TWA

TWA

##### Value

1 MG(Fe)/M3

1 MG(Fe)/M3

## Section 9 - Physical/Chemical Properties

**Appearance**  
**Physical State**  
Solid

**Molecular Weight:** 162.21 AMU

**pH** N/A  
**BP/BP Range** N/A  
**MP/MP Range** 304 °C  
**Freezing Point** N/A  
**Vapor Pressure** < 1 mmHg 20 °C  
**Vapor Density** 5.61 g/l  
**Saturated Vapor Conc.** N/A  
**SG/Density** 2.8 g/cm<sup>3</sup>  
**Bulk Density** N/A  
**Odor Threshold** N/A  
**Volatile%** N/A  
**VOC Content** N/A  
**Water Content** N/A  
**Solvent Content** N/A  
**Evaporation Rate** N/A  
**Viscosity** N/A  
**Partition Coefficient** N/A  
**Decomposition Temp.** N/A  
**Flash Point °F** N/A  
**Flash Point °C** N/A

**Explosion Limits** N/A

**Flammability** N/A  
**Autoignition Temp** N/A  
**Solubility** N/A

N/A = not available

## Section 10 - Stability and Reactivity

**Stability**  
Stable  
Stable.

### Materials to Avoid

Strong oxidizing agents, Forms explosive mixtures with: Sodium, Potassium, Alkali metals, Bases, Exothermic in contact with water.

### Hazardous Decomposition Products

#### Hazardous Decomposition Products

Hydrogen chloride gas, Iron oxides.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

## Section 11 - Toxicological Information

### Route of Exposure

#### Skin Contact

Causes skin irritation.

#### Skin Absorption

May be harmful if absorbed through the skin.

#### Eye Contact

Causes severe eye irritation.

#### Inhalation

May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

#### Ingestion

Harmful if swallowed.

### Signs and Symptoms of Exposure

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**RTECS Number:** LJ910000

### Toxicity Data

Oral - Woman: 4 ML/KG (LDLO)

Remarks: Lungs, Thorax, or Respiration: Dyspnea.

Gastrointestinal: Nausea or vomiting.

Nutritional and Gross Metabolic: Changes in: Metabolic acidosis.

Oral - Rat: 450 mg/kg (LD50)

Oral - Mouse: 895 mg/kg (LD50)

Intravenous - Mouse: 58 MG/KG (LD50)

### Irritation Data

Eyes - Rabbit:

Remarks: Severe Irritation effect

Skin - Rabbit:

Remarks: Moderate irritation effect

### Chronic Exposure - Reproductive Hazard

Species	Dose	Route of Application	Exposure Time
Rat	12976 UG/KG	Intratesticular	(1D MALE)
			Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count). Paternal Effects: Testes, epididymis, sperm duct.
Rat	29 MG/KG	Intravaginal	(1D PRE)
			Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea).

## Section 12 - Ecological Information

No data available.

### Section 13 - Disposal Considerations

#### Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Observe all federal, state, and local environmental regulations.

### Section 14 - Transport Information

#### DOT

Proper Shipping Name: Ferric chloride, anhydrous

UN#: 1773

Class: 8

Packing Group: Packing Group III

Hazard Label: Corrosive

PIH: Not PIH

#### IATA

Proper Shipping Name: Ferric chloride, anhydrous

IATA UN Number: 1773

Hazard Class: 8

Packing Group: III

### Section 15 - Regulatory Information

#### EU Additional Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements R: 22 38 41

Harmful if swallowed. Irritating to skin. Risk of serious damage to eyes.

Safety Statements S: 26 39

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

#### US Classification and Label Text

Indication of Danger

Toxic (USA) Harmful (EU).

Risk Statements

Harmful if swallowed. Risk of serious damage to eyes.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.

#### United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

#### Canada Regulatory Information

##### WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

### Section 16 - Other Information

#### Disclaimer

For R&D use only. Not for drug, household or other uses.

#### Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.



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