

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

MSDS Name: Ferric chloride solution 10% (BSI)
88104

Catalog Numbers: 25018

Synonyms: Iron (III) chloride; Iron chloride; Iron trichloride; Iron sesquichloride.

Company Identification: Fisher Diagnostics
8365 Valley Pike
Middletown, VA 22645-0307

For information in the US, call: 800-528-0494

Emergency Number US: 800-524-0294

CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 7647-01-0
Chemical Name: Hydrochloric acid
%: 0.1
EINECS#: 231-595-7
Hazard Symbols: C
Risk Phrases: 34 37

CAS#: 7732-18-5
Chemical Name: Water
%: 89.9
EINECS#: 231-791-2
Hazard Symbols:
Risk Phrases:

CAS#: 10025-77-1
Chemical Name: Ferric chloride hexahydrate
%: 10
EINECS#: unlisted
Hazard Symbols:
Risk Phrases:

Text for R-phrases: see Section 16

Hazard Symbols: None listed

Risk Phrases: None listed

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Caution! May be harmful if swallowed. May cause adverse reproductive effects based upon animal studies. May cause liver and kidney damage. May cause severe respiratory and digestive tract irritation with possible burns. May cause severe eye and skin irritation with possible burns. Target Organs: Kidneys, liver.

Potential Health Effects

- Eye:** May cause eye burns. Contact produces irritation, tearing, and burning pain.
- Skin:** May be absorbed through the skin. May cause severe irritation and possible burns.
- Ingestion:** May cause liver and kidney damage. May cause perforation of the digestive tract. May cause vascular collapse and damage. Causes severe pain, nausea, vomiting, diarrhea, and shock.
- Inhalation:** Inhalation of vapor may cause severe respiratory tract irritation.
- Chronic:** Prolonged or repeated exposure may cause adverse reproductive effects. Repeated exposure may increase iron levels in the liver, spleen and lymphatic system. Damage may occur in the spleen and liver.

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 immediately. Do NOT allow victim to rub eyes or keep eyes closed.
- Skin:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.
- Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
- Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

- Antidote:** The use of Deferoxamine as a chelating agent should be determined only by qualified medical personnel.

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:** For small fires, use water spray, dry chemical, carbon dioxide or chemical foam.
- Autoignition:** Not applicable.
- Temperature:**
- Flash Point:** Not applicable.
- Explosion Limits:** Not available
- Lower:**
- Explosion Limits:** Not available
- Upper:**
- NFPA Rating:** 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:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Spill may be carefully neutralized with lime (calcium oxide, CaO).

Section 7 - Handling and Storage

- Handling:** Wash thoroughly after handling. Wash hands before eating. Use with adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale.
- Storage:** Do not store in direct sunlight. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Hydrochloric acid	2 ppm Ceiling	50 ppm IDLH	5 ppm Ceiling; 7 Ceiling
Water listed	none listed	none listed	none mg/m3
Ferric chloride hexahydrate	1 mg/m3 TWA (as Fe) (listed under Iron salts (soluble)).	1 mg/m3 TWA (as Fe) (listed under Iron salts (soluble)).	none

OSHA Vacated PELs: Hydrochloric acid: None listed Water: None listed Ferric chloride hexahydrate: 1 mg/m3 TWA (as Fe) (listed under Iron salts (soluble))

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. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

- Physical State:** Liquid
- Color:** clear yellow
- Odor:** Slight chlorine odor.
- pH:** Not available
- Vapor Pressure:** Not available
- Vapor Density:** Not available
- Evaporation Rate:** Not available
- Viscosity:** Not available
- Boiling Point:** Not available
- Freezing/Melting Point:** Not available
- Decomposition Temperature:** Not available

Solubility in water: Complete in water.
Specific Gravity/Density: 1.07 (Water=1)
Molecular Formula: Not applicable.
Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Excess heat.
Incompatibilities with Other Materials Not available
Hazardous Decomposition Products Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide.
Hazardous Polymerization Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 7647-01-0: MW4025000 MW4031000
CAS# 7732-18-5: ZC0110000
CAS# 10025-77-1: NO5425000

LD50/LC50: RTECS:
CAS# 7647-01-0: Inhalation, mouse: LC50 = 1108 ppm/1H;
Inhalation, mouse: LC50 = 20487 mg/m3/5M;
Inhalation, mouse: LC50 = 3940 mg/m3/30M;
Inhalation, mouse: LC50 = 8300 mg/m3/30M;
Inhalation, rat: LC50 = 3124 ppm/1H;
Inhalation, rat: LC50 = 60938 mg/m3/5M;
Inhalation, rat: LC50 = 7004 mg/m3/30M;
Inhalation, rat: LC50 = 45000 mg/m3/5M;
Inhalation, rat: LC50 = 8300 mg/m3/30M;
Oral, rabbit: LD50 = 900 mg/kg;

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RTECS:
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg;

.
RTECS:
CAS# 10025-77-1:

Carcinogenicity: Hydrochloric acid - IARC: Group 3 (not classifiable)
Water - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Ferric chloride hexahydrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Not available
Teratogenicity: Not available
Reproductive: Not available
Neurotoxicity: Not available
Mutagenicity: Not available
Other: Not available

Section 12 - Ecological Information

Ecotoxicity: Not 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
Shipping Name: Not regulated as a hazardous material
Hazard Class:

UN Number:
Packing Group:
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:
USA RQ: CAS# 7647-01-0: 5000 lb final RQ; 2270 kg final RQ

Section 15 - Regulatory Information

US Federal

TSCA

CAS# 7647-01-0 is listed on the TSCA Inventory.

CAS# 7732-18-5 is listed on the TSCA Inventory.

CAS# 10025-77-1 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)).

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# 7647-01-0: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 7647-01-0: 500 lb TPQ (gas only)

SARA Codes Section 313

CAS # 7647-01-0: acute. CAS # 10025-77-1: acute.

This chemical is not at a high enough concentration to be reportable under Section 313. No chemicals are reportable under Section 313.

Clean Air Act:

CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 7647-01-0 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:

STATE

Hydrochloric acid can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts. Water is not present on state lists from CA, PA, MN, MA, FL, or NJ. Ferric chloride hexahydrate can be found on the following state right to know lists: California, (listed as Iron salts (soluble)), Pennsylvania, (listed as Iron salts (soluble)), Minnesota, (listed as Iron salts (soluble)).

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: Not available

Risk Phrases:

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 7647-01-0: 1

CAS# 7732-18-5: Not available

CAS# 10025-77-1: Not available

Canada

CAS# 7647-01-0 is listed on Canada's DSL List

CAS# 7732-18-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: Not available

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.

CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

CAS# 10025-77-1 is not listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: 10/15/1997

Revision #4 Date 3/22/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.