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MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Ferric Chloride Solution
Synonyms: Iron (III) Chloride, Iron Trichloride

Effective Date: 05/18/95 Revision Date: 06/28/01 Product Code: Date Printed 06/28/01

TYPICAL PRODUCT USE: Coagulation and Flocculation



Maximum Use Level: 185 mg/L

Certified to ANSI/NSF Standard 60

<u>INGREDIENT:</u>	<u>CAS #</u>	<u>RANGE. WT %</u>
Ferric Chloride - FeCl ₃	7705-08-0	38 - 42%
Magnesium Chloride	7786-30-3	0 - 3%
Ferrous Chloride	7758-94-3	0 - 1%
Hydrochloric Acid - HCl	7647-01-0	0 - 1%
Water H ₂ O	7732-18-5	Balance

PHYSICAL PROPERTIES:

Physical Form: Aqueous Solution
 Boiling Point: 225°F - 250°F Sp. Gravity: 1.2 - 1.48
 Freezing Point: 6°F - 8°F (concentration dependent) Appearance: Reddish brown solution
 Vap Press: N/A
 Vap Density: N/A (liquid)
 Odor: Slight odor.

EXPOSURE LIMITS

	OSHA-PEL	ACGIH - TLV	COMMENTS
Ferric Chloride - FeCl ₃	1 mg/m ³ (as Fe)	1 mg/m ³ (as Fe)	
Ferrous Chloride - FeCl ₂	1 mg/m ³ (as Fe)	1 mg/m ³ (as Fe)	
MgCl ₂	Not Listed	Not Listed	
Hydrochloric Acid - HCl	7 mg/m ³ (c)	7 mg/m ³ (c)	

(c) - ceiling limit in OSHA "Air Contaminants" 29 CFR 1910.1000.

FIRE AND EXPLOSION

Flash Point: None Method Used: None
 Flammable Limits: Non-Flammable
 Extinguishing Media: Dry Chemical, Water Spray or Carbon Dioxide.

FIRE AND EXPLOSION HAZARDS: Irritating hydrogen chloride fumes may be present in fire involving this substance.

FIRE FIGHTING EQUIPMENT: Use water spray or foam in large fires. Wear self-contained breathing apparatus.

NFPA Ratings: Health - 2, Flammability - 0, Reactivity - 0

REACTIVITY:**STABILITY:** Stable.**INCOMPATIBILITY:** Materials to avoid: Corrosive metal salt solutions may generate hydrogen gas when contacting alkaline metals. Rapidly corrodes most metals. Avoid contact with aluminum, aluminum alloys, carbon steel, copper, copper alloys and nylon. Also avoid contact with all alkaline materials. Reacts violently with allyl chloride, sodium and potassium.**HAZARDOUS DECOMPOSITION PRODUCTS:** When heated to decomposition, Ferric Chloride emits highly toxic fumes of HCl and iron oxides.**HAZARDOUS POLYMERIZATION:** May not occur.**HEALTH HAZARD****PRIMARY ROUTE OF ENTRY:** Inhalation, ingestion and skin contact.**SKIN, EYE AND RESPIRATORY IRRITATION:** Yes**Carcinogenicity:** NTP: No data found IARC: No data found OSHA: No data found**SYMPTOMS AND EFFECTS OF OVEREXPOSURE:** Hydrochloric acid and high concentrations of hydrogen chloride gas are highly corrosive to eyes, skin and mucous membranes.**Inhalation:** Product mists are irritating to mucous membranes, respiratory tract and lung tissues. May cause coughing and difficulty breathing. Excessive exposures have also resulted in bronchitis symptoms, chest pain, dyspnea and pulmonary edema. The onset of respiratory symptoms may be delayed by several hours.**Skin:** Prolonged contact may cause irritation, dermatitis, blistering and staining to occur. Highly toxic by intravenous route.**Ingestion:** Low toxicity in small quantities. Larger doses (30 mg/kg) may cause stomach irritation resulting in nausea, vomiting and diarrhea. Mucous membranes and gastrointestinal tract may also be burned. Pink urine discoloration is a strong indicator of iron poisoning. Liver cirrhosis, fibrosis of the pancreas, coma and death may follow. Oral ingestion may produce mild to moderately severe oral and esophageal burns with severe stomach burns. Vomit (coffee grounds in appearance), drooling and pain may occur. Acidosis and hemolysis may occur due to absorption.**Eyes:** Exposure results in pain, swelling, lacrimation, corneal erosions, photophobia and blindness. May cause burns to inner eyelids.**Estimated Fatal Dose:** Ferric salts is 30 grams. LD50 (Mouse) = 1278 mg/kg LD50 (Rat) = 1872 mg/m³**Toxic Hazard Rating:** Moderately toxic. Probable oral lethal dose in humans ranges from .5-5g/kg or 1 oz. to 1 pint (1 lb.)**FIRST AID PROCEDURES****Inhalation:** Remove from affected area and give oxygen/artificial respiration if needed. Seek medical attention for breathing difficulty.**Ingestion: DO NOT INDUCE VOMITING!** Do not give bicarbonate to neutralize. Activated charcoal is of no value. Passing a nasogastric tube into the stomach is controversial at this time. Irrigate all affected areas with copious amounts of water. Immediately dilute with 4 to 6 oz. of milk or water in adults and 2 to 4 oz. in children. Get immediate medical attention! In severe cases of gastrointestinal necrosis, surgical consultation may be required.**Laboratory:** Obtain CBC and electrolytes, if needed.**Eye exposure:** Exposed eyes should be irrigated with copious amounts of water for at least 15 minutes. If irritation, lacrimation, swelling or photophobia persists, the patient should be taken to a health care facility.**Dermal Exposure:** Remove contaminated clothing and wash thoroughly with copious amounts of soap and water for at least 15 minutes. A physician may need to be seen.

HANDLING PRECAUTIONS

VENTILATION: General and local ventilation as situation dictates.

RESPIRATORY PROTECTION: Follow OSHA regulations, use NIOSH approved respirators and cartridges as needed.

SKIN PROTECTION: Use of rubber gloves and protective suits may be needed where splash or spray hazards exist.

EYE PROTECTION: Use chemical goggles, where splash hazard exists wear full face shield.

ENVIRONMENTAL AND DISPOSAL INFORMATION

Steps to be Taken in Case of Release: Neutralize with lime or Sodium bicarbonate. Transfer to an EPA approved container. When neutralized, dispose of in accordance with local, state or federal environmental regulations. Dike spills to prevent run-off onto public land or waterways. (CERCLA RQ 1000 lbs.)

Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, as required under 40CFR 302.6, when there is a release of this hazardous substance in an amount equal to or greater than its reportable quantity of 1000 lbs. or 454 kg. The toll free telephone number of the NRC is (800) 424-8802. Serious penalties are prescribed for failing to make the required notifications. Calling CHEMTREK, does not constitute compliance with this requirement. Only a phone call to the NRC satisfies these reporting requirements.

DISPOSAL METHOD: Dispose of in accordance with Federal, State and Local environmental laws.

PRECAUTIONS FOR HANDLING AND STORAGE:

SARA:

D.O.T.

REVISION/REVIEW HISTORY

Revision Date	Description of Revision
6/28/01	Updated components and ranges, added NSF insignia, corrected typos. bt