



MATERIAL SAFETY DATA SHEET
Ferric Chloride

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

	<u>USA</u>	<u>CANADA</u>
Supplier:	Kemiron Companies, Inc. 316 Bartow Municipal Airport Bartow, Florida 33830	Eaglebrook, Inc. of Canada / L'Environnement Eaglebrook Québec 3405 Blvd. Marie Victorin Varenes, Québec J3X 1T6
Telephone:	(800) 879-6353 - Sales (785) 842-7424	(800) 465-6171 (450) 652-0665

Emergency Contacts (24 hr.)

FOR EMERGENCIES INVOLVING CHEMICAL SPILL OR RELEASE, CALL
CHEMTREC (800) 424-9300 USA (TOLL FREE)
CANUTEC (613) 996-6666 CANADA (CALL COLLECT)

Product Name: Ferric Chloride
Chemical Family: Inorganic Salts
Formula: FeCl₃
Synonym: Iron (III) Chloride
Acceptable Product Uses: Water and wastewater treatment, odor removal, adhesive for dye, textile impression pigment, ink and photoengraving.

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS Number #</u>	<u>Concentration</u>	<u>ACGIH TWA</u>
Ferric Chloride	7705-08-0	28 - 43 %	1 mg/m ³ (as Fe)
Hydrochloric Acid	7647-01-0	<5 %	5 ppm

3. HAZARDS IDENTIFICATION

Emergency Overview: Eye contact may cause irritation. Harmful if inhaled. Harmful or fatal if swallowed.

Potential Effects on Health: Acute and chronic.

Carcinogenicity: Does not contain any known carcinogens or potential carcinogens.



MATERIAL SAFETY DATA SHEET

Ferric Chloride

4. FIRST AID MEASURES

- General:** If you feel unwell, seek medical attention (show the label or this MSDS if possible). Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
- Skin Contact:** Remove all contaminated clothing, jewellery, and shoes. Wash affected area with soap or mild detergent and running water for at least 15 minutes. If irritation is still present, seek medical attention.
- Eye Contact:** Flush immediately with water for at least 15 minutes, occasionally lifting upper and lower lids, until no evidence of chemical remains. Obtain medical attention immediately.
- Inhalation:** Move to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim has ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Obtain medical attention immediately.
- Ingestion:** *If conscious*, give two (2) glasses of water. **DO NOT INDUCE VOMITING.** Do not give anything by mouth to an unconscious person. Obtain immediate medical attention.

5. FIRE FIGHTING MEASURES

Flash point	Not applicable. Will not burn
Flammable Limits (Lower)	Not applicable
Flammable Limits (Upper)	Not applicable
Auto Ignition Temperature	Not applicable
Combustion and Thermal Decomposition Products	hydrogen chloride gas, phosgene gas if dried and then heated
Rate of Burning	Does not burn
Explosive Power	Not applicable
Sensitivity to Static Discharge	Not available

Fire and Explosion Hazards: During a fire, irritating/toxic hydrogen chloride, and/or phosgene gases may be generated if material is dried and then heated to decomposition.

Extinguishing Media: The substance is not combustible. Use extinguishing media appropriate to the surrounding fire.

NOTE: Also see "Section 10 – Stability and Reactivity"



MATERIAL SAFETY DATA SHEET

Ferric Chloride

6. ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Release:

- **Restrict access** until clean-up operations are complete. Wear appropriate Personal Protective Equipment per Section 8. Ensure trained personnel conduct clean up and wear Personal Protective Equipment per Section 8.
- **Stop leak if possible.** Avoid personal risk.
- **Notify Authorities** if release exceeds reportable quantity per Section 15
- **Small Spills** – Absorb spill with clay or dry material or neutralize with lime, limestone or soda ash and collect in appropriate container for disposal. Neutralization with soda ash can generate carbon dioxide so additional ventilation may be necessary.
- **Large Spills** – Prevent entry into sewers and confined areas. Dike, if possible. Keep unnecessary people away, isolate area and deny entry. Pump liquid material into appropriate vessels as possible or absorb spill with clay absorbents or non-reactive dry materials and collect in appropriate container for disposal.
Neutralize spill residuals carefully with lime, limestone, or soda ash and collect in suitable container for disposal. Flush area with water. This could generate carbon dioxide so additional ventilation may be necessary. Notify the appropriate environmental authorities.

7. HANDLING AND STORAGE

Handling: Handle all chemicals with respect. Review the label, this MSDS and any other applicable information before use. Keep separated from incompatible substances. Use appropriate Personal Protective Equipment per Section 8. Handle only with equipment, materials and supplies specified by their manufacturer as being compatible and appropriate for use with this product.

Storage Requirements:

Bulk storage containers and ancillary fill and feed systems should be constructed out of appropriate materials such as polyethylene, polypropylene, rubber-lined steel and FRP designated as appropriate for use with this product. Storage tanks should be vented to scrubber or exterior atmosphere. Storage facilities should have secondary containment as required by law or regulation. **Storage tanks, piping and offloading points should be labeled with appropriate signage to avoid accidents.**

Some concentrations of this product will freeze or crystallize at low temperatures. Insulate and heat-trace storage tanks, pumps, pipes and ancillary equipment as necessary. Product should be used within one (1) year.

Material may be stored in tightly closed shipping containers, preferably the supplier containers. Containers of this material may be hazardous when empty; since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.



MATERIAL SAFETY DATA SHEET

Ferric Chloride

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Preventive Measures:

Engineering Controls: A ventilation system of local/general exhaust is recommended to keep employee exposure below the Airborne Exposure Limits. Ensure that eyewash station and safety showers are proximal to the workstation location.

Personal Protection Equipment:

Eye Protection: Wear splash resistant chemical goggles and, where splashing is possible, a full face shield. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to avoid skin contact.

Recommended Protective Material: Neoprene

Respiratory Protection: Under conditions of misting or contact with head gases, respiratory protection may be needed. Consider respirator warning properties before use.

- With limited contact use an appropriate chemical cartridge respirator with acid gas cartridge(s)
- When cleaning, decontaminating or performing maintenance on tanks, containers, piping systems and accessories, and in any other situations where airborne contaminants and/or dust could be generated, use protective equipment to protect against ingestion or inhalation. HEPA or air supplied respirator, full protective coveralls with head cover, gloves and boots or chemical suits, and boots are suggested.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Reddish Brown
Odor:	Slight pungent odor
Form:	Liquid
pH as is:	<2
Vapor Pressure (mm Hg):	Negligible
Boiling Point:	105 °C - 110 °C (220 - 230 °F)
Specific Gravity (20°C):	1.26 - 1.48
Solubility (water):	max .78 kg FeCl ₃ (anhydrous) / kg water
Vapor Density (Air=1):	N/A
Percent Volatile by Vol.:	N/A
Freezing Point:	Concentration dependent (Consult your Kemiron representative)



MATERIAL SAFETY DATA SHEET

Ferric Chloride

10. STABILITY AND REACTIVITY

Hazardous Decomposition Products: Thermal decomposition: after completely dry and heated to decomposition will produce hydrogen chloride gas.

Chemical Stability: Stable at normal temperatures and pressure.

Conditions to Avoid: Dangerous gases may accumulate in confined spaces.

Incompatibility with other Substances: Reacts with most metals (except Titanium and Tantalum) and bases (alkaline materials). Material has moderate oxidizing capability, avoid contact with strong reducing agents.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Based on Ferric Chloride Solid (anhydrous)

TOXICOLOGICAL DATA: LD₅₀ (oral, rat) = 450 mg/kg

Mutagenicity: Other mutation test systems: Escherichia coli – 500 nmol/tube;
Phage inhibition capacity: Escherichia coli 41 ng/well

Reproductive Effects: TDLo Rat 1 day(s) intratesticular 12976 µg/kg;
TDLo Rat 1 day(s) intravaginal 29 mg/kg pre pregnancy continuous

Teratogenicity and Fetotoxicity: Not available

Synergistic Materials: Not available

12. ECOLOGICAL INFORMATION

Based on Ferric Chloride Solution

Ecotoxicological Information: TLm Daphnia 15 ppm/96 hr fresh water / Conditions of bioassay not specified

Persistence and Degradation: No data available

13. DISPOSAL CONSIDERATIONS

Review Federal, State, Provincial, and Local government regulations prior to disposal. This material exhibits the characteristic of corrosivity to metals and other building materials and any disposal must comply with hazardous waste disposal requirements. Any residues and/or rinse waters from cleaning of tanks, containers, piping systems and accessories may be a hazardous characteristic waste and must be properly disposed of in accordance with federal, state, provincial and local laws.

RCRA: Test waste material for corrosivity, D002, prior to disposal



MATERIAL SAFETY DATA SHEET
Ferric Chloride

14. TRANSPORT INFORMATION

	Canada (TDG)	U.S. (DOT)
Shipping Name	Ferric Chloride Solution	Ferric Chloride Solution
Hazard Class/Division	8: Corrosive liquid 9.2: Environmentally hazardous material	8: Corrosive liquid
Identification No. Packing Group:	UN2582 II	UN2582 II

Transportation Emergency Telephone Numbers:

1-800-424-9300 CHEMTREC (USA)

613-996-6666 CANUTEC (CANADA) (CALL COLLECT)

IATA/ICAO Class: 8

15. REGULATORY INFORMATION

USA CLASSIFICATION:

OSHA Classification: Hazardous by definition of Hazard Communication Standard (29 CFR 1920.1200)

CERCLA: Hazardous substance/reportable quantity (RQ): final RQ = 1000 lb. (454 kg)
Based on Anhydrous Ferric Chloride (divide by solution concentration to obtain solution weight)

SARA Regulations sections 313 and 40 CFR 372: No

SARA Hazard Categories, SARA SECTIONS 311/312 (40CFR370.21):

Acute	Yes
Chronic	No
Fire	No
Reactive	No
Sudden Release	No
OSHA Process Safety (29CFR1910.119)	Yes

Clean Water Act Requirements: Designated as a hazardous substance under section 311(b)(2)(A) of the Federal Water Pollution Control Act and further regulated by the Clean Water Act Amendments of 1977 and 1978. These regulations apply to discharges of this substance.

TSCA: This substance or all ingredients of this product are listed on the Chemical Substances Inventory of the TSCA. Does not require reporting.



MATERIAL SAFETY DATA SHEET
Ferric Chloride

Other Regulations/Legislation which apply to this product:

California Proposition 65: No

Right-To-Know Lists: Massachusetts, New Jersey, Pennsylvania, California

This product does not contain, nor is it manufactured with, ozone-depleting substances.

CANADIAN CLASSIFICATION

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all information required by the CPR.

Controlled Products Regulation (WHMIS) Classification: E: Corrosive

CEPA / Canadian Domestic Substances List (DSL): The substance in this product is not on the Canadian Domestic Substances List (CEPA DSL).

EEC CLASSIFICATION

EINECS: 231-729-4

16. OTHER INFORMATION

National Fire Protection Association (NFPA) and Hazardous Materials Identification System (HMIS) Ratings:

	NFPA	HMIS
HEALTH	2	2
FIRE	0	0
REACTIVITY	1	1

4 = Extreme/Severe
3 = High/Serious
2 = Moderate
1 = Slight
0 = Minimum

Risk Phrases: R22 – Harmful if swallowed

Safety Phrases: S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37/39 – Wear suitable protective clothing, gloves and eye protection.

Legend:

- ACGIH: American Conference of Government Industrial Hygienists
- AWWA: American Water Works Association
- CAS: Chemical Abstracts Service
- CEPA: Canadian Environmental Protection Act
- CERCLA: Comprehensive Environmental Response, Compensation and Liability Act
- CFR: Code of Federal Regulations
- CIRC: Cancer International Research Center
- DOT: Department of Transport
- DSL: Domestic Substance List
- FRP: Fiberglass Reinforced Plastic



MATERIAL SAFETY DATA SHEET

Ferric Chloride

HEPA: High Efficiency Particulate Arresting
HMIS: Hazardous Material Information System
LEL: Lower Explosive Limit
LC₅₀: The concentration of material in air expected to kill 50% of a group of test animals.
LD₅₀: Lethal dose expected to kill 50% of a group of test animals.
LOEC: Lowest observed effect concentration
IARC: International Agency for Research on Cancer
MSHA: Mine Safety and Health Administration
N/A: Not Applicable
NFPA: National Fire Protection Agency
NIOSH: National Institute for Occupational Safety and Health
NPRI: National Pollutant Release Inventory
NSF: National Sanitation Foundation
NTP: National Toxicology Program
OSHA: Occupation Health and Safety Administration
RCRA: Resource Conservation and Recovery Act
RTECS: Registry of Toxic Effects of Substances
SARA: Superfund Amendments and Reauthorization Act of the US EPA
TDG: Transport of Dangerous Goods
TLm: Median Tolerance Limit
TLV: Threshold Limit Value
TSCA: Toxic Substances Control Act
TWA: Time Weight Average
UEL: Upper Explosive Limit
WHMIS: Workplace Hazardous Material Information System

Kemiron Companies, Inc., and Eaglebrook, Inc. of Canada / L'Environnement Eaglebrook Québec provide the foregoing information in good faith and make no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using the product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

KEMIRON COMPANIES, INC., AND EAGLEBROOK, INC. OF CANADA / L'ENVIRONNEMENT EAGLEBROOK QUÉBEC MAKE NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, KEMIRON COMPANIES, INC., AND EAGLEBROOK, INC. OF CANADA / L'ENVIRONNEMENT EAGLEBROOK QUÉBEC DISCLAIM RESPONSIBILITY FOR DAMAGES RESULTING FROM USE OR RELIANCE UPON THIS INFORMATION.

MSDS Revised on May 24, 2005 by Kemiron HSE group

FOR MORE INFORMATION ON THE USE OR THE PERFORMANCE OF OUR PRODUCTS, OR FOR SAMPLE REQUEST PLEASE CONTACT KEMIRON/EAGLEBROOK REPRESENTATIVES AT 1-(800) 879-6353

