Safety Data Sheet

1. Product Identifier and Company Identification

Product name : **Ferric Chloride**
HBCC SDS number : CF01000
Synonym : Ferric Chloride, Iron (III) Solution, Ferric Trichloride
Product use and Restrictions : Refer to label or call
Manufacturer Contact Address :

Corporate Headquarters
Hill Brothers Chemical Company
1675 North Main Street
Orange, California 92867
714-998-8800
800-821-7234

Corporate Safety & Compliance
Hill Brothers Chemical Company
7121 West Bell Road, Suite 250
Glendale, Arizona 85308
623-535-9955 - Office
623-535-9944 - Fax

Emergency telephone Number (Chemtrec) : 800-424-9300
Website : http://hillbrothers.com

2. Hazard Identification

Classification : Acute Oral Toxicity – Category 4
Skin Corrosion/Irritation – Category 2
Serious Eye Damage/Eye Irritation – Category 1
Corrosive to Metals – Category 1

Signal Word : Danger

Pictogram(s) :

Hazard Statements : H290: May be corrosive to metals.
H302: Harmful if swallowed.
H318: Causes serious eye damage.
H315: Causes skin irritation.

Precautionary Statements

Response : P301+P312+P330: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.
P302+P352+P362+P363: IF ON SKIN: Wash with plenty of soap and water. Take off all contaminated clothing. Wash contaminated clothing before reuse.
P332+P313: IF skin irritation occurs: Get medical advice/attention.
P305+P351+P338+P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER of doctor.

Prevention : P280: Wear protective gloves/protective clothing/eye protection/face protection.
P270: Do not eat, drink or smoke when using this product.
P264: Wash hands thoroughly after handling.
P391: Collect spillage.

Storage : P406: Store in a corrosive resistant container with a resistant inner liner.
P402+P403+P235: Store in a dry place. Store in a well-ventilated place. Keep cool.

Disposal : P501: Dispose of contents and container in accordance with all local/regional/national/international regulation.

3. Composition / Information on Ingredients

CAS Number	Ingredient Name	Weight %
7705-08-0	Ferric Chloride	39-44%
7647-01-0	Hydrochloric Acid	<5%
7732-18-5	Water	<60%

4. First Aid Measures

Summary of First Aid Measures

Ingestion : If ingested give 1 or 2 glasses of water. DO NOT INDUCE VOMITING. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

Inhalation : Remove to fresh air. Keep warm and quiet. Consult physician.

Skin : Flush with water for 30 minutes. Remove contaminated clothing.

Eyes : Immediately, flush with large amounts of water for at least 15 minutes while holding eyelids apart. Washing within one minute is essential to achieve maximum effectiveness. Get immediate medical attention after flushing.

Medical Conditions : N/A

Effects of Overexposure : Symptoms of Ingestion: Abdominal pain, and prolonged vomiting may begin up to one hour after ingestion of excessive quantities of soluble iron salts. Hematemesis, dehydration, shock, pallor, cyanosis, hypothermia, vasomotor instability, and coma may follow. If death is not immediate, it may occur 1-3 days later, survivors may develop reversible hemorrhagic necrosis. Gastric scarring may occur after 4 weeks. Pyloric stenosis and mild hepatic cirrhosis may persist.

Summary of Acute Health Hazards : N/A

Ingestion : This material is toxic by ingestion. May result in severe liver and/or kidney damage, if swallowed, and can be fatal.

Inhalation : Inhalation of concentrated mist or vapor may cause irritation of the respiratory tract.

Skin : Contact may include irritation with dryness, discomfort or rash. Ferric chloride has been infrequently associated with skin sensitization in humans. Extensive exposure could lead ro skin sensitization.

Eyes : Contact with eyes can result in visual loss unless removed quickly by through irrigation with water.

Note to Physicians : N/A

Summary of Chronic Health : N/A

Signs and Symptoms of Exposure: Repeated exposure to large amounts or Ferric Chloride may increase irritation.

5. Fire Fighting Measures

Extinguishing : Use water spray, fog, foam, dry chemical, CO_2 or other agents as appropriate for surrounding fire. Use water to keep fire-exposed containers cool. During fire, irritating and toxic gases of hydrogen chloride may be generated by thermal decomposition.

Special Exposure Hazards : Closed containers exposed to heat may explode.

Special Protective : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in a positive pressure mode.

Fire Fighting Procedures : Move exposed containers from fire area if it can be done without risk.

NFPA Rating : Health - 2
Flammability - 0
Instability - 1

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

Uniform Fire Code Rating : N/A

6. Accidental Release Measures

Personal Precautions : N/A

Emergency Procedures : N/A

Methods of Containment And Clean-Up : Contain spill in order to prevent contamination of waterway; neutralize with lime or soda ash. Flush with water in accordance with applicable regulations to waste treatment system. Avoid runoff into storm sewers and ditches which lead to waterways.

7. Handling and Storage

Safe Handling : Avoid breathing vapors and/or mist. Avoid contact with eyes and skin. Wash thoroughly after handling. Follow all MSDS/label precautions even after container is emptied because they may retain vapor and product residues.

Storage : Store away from heat, strong alkalis (such as caustic soda and alkali metals. Keep containers closed and dry. Protect container from physical damage. Use handling equipment (pumps, hoses, etc.) compatible with product, i.e., polyethylene, polypropylene, PVC, Teflon, rubber, FRP, and titanium. Avoid contact with bare metals other than titanium.

Work/Hygienic Practices : An eye wash and safety shower should be readily accessible. Wash hands thoroughly with soap and water before eating, drinking, smoking or using toilet facilities. Do NOT place food, coffee or other drinks in the area where dusting or splashing of solutions is possible.

Ventilation : A system of local exhaust is recommended to keep employee exposure below the airborne exposure limits. Local exhaust is usually preferred because it controls the emission at its source, preventing dispersion of it into the general work area. Refer to the ACGIH document "Industrial Ventilation, a Manual of Recommended Practices" for details.

8. Exposure Controls/Personal Protection

Occupational Exposure Limits :

Chemical Name: Ferric Chloride				
Exposure Limits (TWAs) in Air				
CAS Number	**Chemical**	**ACGIH TLV**	**OSHA PEL**	**STEL**
7705-08-0	Ferric Chloride	1 mg/m^3	1 mg/m^3	N/A
7647-01-0	Hydrochloric Acid	2 ppm	5 ppm	N/A

Protective Equipment : Impervious rubber gloves. Rubber boots, rain suit or rubber apron.

Eye Protection : Chemical splash goggles or face shield. Contact lenses should not be worn when working with this material.

Respiratory : NIOSH/MSHA approved respirator if exposure may, or does exceed occupational exposure limits. Generally, a dust/mist respirator may be worn in areas where the TLV is exceeded up to ten times. Alternatively, a supplied air full face-piece respirator or air-lined hood may be worn.

9. Physical and Chemical Properties

Appearance: Reddish-Brown Liquid	**Odor:** Slightly iron/acid odor
Odor Threshold:	**pH:** <2
Melting Point/Freezing Point: 30.2° F	**Initial Boiling Point/Range:** 230° F (110° C)
Flash Point: N/A	**Evaporation Rate (BuAc=1):**
Flammability: N/A	**Lower/Upper Explosive Limit:** N/A
Vapor Pressure (mmHg): N/A	**Vapor Density (Air=1):** N/A
Specific Gravity @ 20°C: 1.26-1.48	**Solubility in Water:** Miscible
Heat of Solution in H_2O: N/A	**Heat Capacity at 25° C (77° F):** N/A
Decomposition Temperature: N/A	**Density at 25° C (77° F):** N/A
% Volatiles: 65% by weight	**Loose Bulk Density:** N/A
Molecular Weight: 162.24 g/mol	**VOC:** N/A

10. Stability and Reactivity

Reactivity : N/A

Chemical Stability : Stable

Possibility of Hazardous Reactions or Polymerizations : Hazardous Polymerization will not occur

Conditions to Avoid : N/A

Incompatible Materials : Most common metals, aluminum strong bases, strong oxidizing agents, potassium

Hazardous Decomposition Products : When heated to decomposition, emits toxic hydrogen chloride or chlorine.

11. Toxicological Information

Acute and Chronic Effects : Immediate effects: Can causes ever liver and/or kidney damage if swallowed, and may even be fatal.

Routes of Exposure

- **Inhalation** : Yes
- **Ingestion** : Yes
- **Skin** : Yes
- **Eyes** : Yes

Symptoms related to Physical, Chemical & Toxicological Characteristics : N/A

Numerical Measures of Toxicity : N/A

Chronic Toxicity : N/A

Carcinogenicity :

Product Name: Ferric Chloride					
ACGIH	**IARC**	**EPA**	**NIOSH**	**NTP**	**OSHA**
N/A	No	N/A	No	N/A	No

TARGET ORGANS : N/A

12. Ecological Information

Ecotoxicity : Fat Head Minnows LC50 > 1000 ppm; Daphnia Magna LC > 1000 ppm

Persistence and Degradability : N/A

Bioaccumulative Potential :

Product / Ingredient	Log $_{Pow}$	BCF	Potential
-	-	-	-

Mobility in Soil : N/A

13. Disposal Considerations

Disposal of Container : Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in accordance with all local, state and federal regulations.

14. Transport Information

UN# : UN2582
Proper Shipping Name : Ferric Chloride, Solution
Hazard Class / Division : 8
Packing Group : III
Marine Pollutant : No
Special Provisions : B15, IB3, T4, TP1
Emergency Response Guidebook : 2012 ERG, Guide 154, pages 246-247
Placard Advisory :

DOT Reportable Quantity: 1000 Pounds (454 Kilograms)

15. Regulatory Information

SARA 302 Extremely Hazardous Substances (EHS) : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) under Section 302 of EPCRA.

SARA 304 Extremely Hazardous Substances (EHS) Release Notification : No chemical in this product is listed as an Extremely Hazardous Substance (EHS) which, if released to the environment in quantities at or above the substance's Reportable Quantity (RQ), would require reporting to the SERC and LEPC under Section 304 of EPCRA.

SARA 311/312 Hazards :

SARA 311/312 Hazards				
Acute	**Chronic**	**Flammability**	**Pressure**	**Reactivity**
Yes	No	No	No	No

SARA 313 Reportable Chemicals : No chemical in this product is subject to annual emissions, transfers, or waste management reporting under the Community-Right-to-Know provisions of EPCRA Section 313, also known as the Toxic Release Inventory (TRI) Report or Form R.

CERCLA Hazardous : This product contains the following CERCLA hazardous substance(s) subject to the National Response Center (NRC) reporting requirements if released to the environment in quantities greater than or equal to the substance's CERCLA Reportable Quantity (RQ).
Ferric Chloride, CAS #7705-08-0 CERCLA RQ = 1,000 lb. (453.6 kg.)
Hydrochloric Acid, CAS #7647-01-0 CERCLA RQ = 5,000 lb. (2268 kg.)

Clean Air Act (CAA) Section 112(r) Air Pollutants : No chemical in this product is listed as an air pollutant under the U.S. Clean Air Act, Section 112(r) (40 CFR 61).

California Prop 65 Chemicals : This product does not contain any chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

Hazard Label Warning : This product requires the following hazard label warning:
Corrosive, Class 8

TSCA (Toxic Substances Control Act) : All chemical substances in this product are listed on the U.S. TSCA Inventory List.

ACRONYMS:

CAS # – Chemical Abstract Services Registry Number
CFR – Code of Federal Regulations
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
EPCRA – Emergency Planning and Community Right-to-Know Act
LEPC – Local Emergency Planning Committee
SERC – State Emergency Response Commission

16. Other Information

Revision date	:	05/05/2015
Supersedes	:	05/28/2008
First Issue	:	09/24/1992
Chemical Family / Type	:	Ferric Chloride
Section(s) changed since last revision	:	MSDS to First Issue SDS Conversion

IMPORTANT! Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control; **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.