

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ferric Chloride Solution
Synonyms: Iron (III) Chloride
Product Description: Ferric Chloride
Chemical Family: Inorganic Salts
Molecular Formula: FeCl_3
Intended/Recommended Use: Flocculant Water treating chemical Water and wastewater treatment Odor removal
Adhesive for dye Textile impression pigment Ink and photoengraving

Supplier: Harcros Chemicals, Inc.
5200 Speaker Road
Kansas City, KS 66106-1095
(913)-321-3131
Emergency Telephone Number: 1-800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

OSHA REGULATED COMPONENTS

Component / CAS No.	%	(w/w)	OSHA (PEL): ACGIH (TLV)		Carcinogen
			Not established	Not established	
Ferric Chloride 7705-08-0	27 - 42				-
Hydrochloric acid 7647-01-0	≤ 1.0		7 mg/m ³ (Ceiling) 5 ppm (Ceiling)	2 ppm (Ceiling)	-

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR:

Color: reddish-brown
Appearance: liquid
Odor: slight pungent

STATEMENTS OF HAZARD:

WARNING! CAUSES EYE AND SKIN IRRITATION

POTENTIAL HEALTH EFFECTS

EFFECTS OF EXPOSURE:

Direct contact with this material may cause severe eye and skin irritation. Inhalation overexposure to the mist or vapor may cause respiratory tract irritation. Refer to Section 11 for toxicology information on the regulated components of this product. The acute oral (rat) LD50 is estimated to be >400 mg/kg.

4. FIRST AID MEASURES

Ingestion:

If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person. Give one or two glasses of water to drink and refer to medical personnel or take direction from either a physician or a poison control center.

Skin Contact:

Do not reuse contaminated clothing without laundering. Wash immediately with plenty of water. Remove contaminated clothing and shoes without delay. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical attention without delay for any symptoms of injury to the eye.

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Apply artificial respiration if patient is not breathing. Obtain medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

The substance is not combustible. Use extinguishing media appropriate to the surrounding fire.
NOTE: Also see "Section 10 - Stability and Reactivity"

Protective Equipment:

Wear full firefighting protective clothing. See MSDS Section 8 (Exposure Controls/Personal Protection). Firefighters, and others exposed, wear self-contained breathing apparatus.

Special Hazards:

Keep containers cool by spraying with water if exposed to fire. During a fire, irritating/toxic hydrogen chloride, and/or phosgene gases may be generated if material is dried and then heated to decomposition.

Mechanical/Static Sensitivity Statements:

None

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where exposure level is known, wear approved respirator suitable for level of exposure. In addition to the protective clothing/equipment in Section 8, wear a two piece PVC suit with hood or PVC overalls with hood.

Methods For Cleaning Up:

Cover spills with some inert absorbent. Sweep up into containers for disposal. Flush spill area with water.

Environmental Precautions:

Prevent water contaminated with this product from entering drains, sewers or streams, growing crops/keeping animal areas, and sites of native flora and fauna.

7. HANDLING AND STORAGE

HANDLING

Precautionary Measures: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Special Handling Statements: This material will corrode steel or aluminum at a rate greater than 6.25 mm (0.25 inches/year) @ 55 °C (130 °F). It is thus considered to be a corrosive material for transportation purposes. 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

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 (vapor, liquid); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure.

Respiratory Protection:

Where exposures are below the established exposure limit, no respiratory protection is required. Where exposures exceed the established exposure limit, use respiratory protection recommended for the material and level of exposure.

Eye Protection:

Eyewash equipment and safety shower should be provided in areas of potential exposure. Wear eye/face protection such as chemical splash proof goggles or face shield.

Skin Protection:

Wear impermeable gloves and suitable protective clothing. Avoid skin contact.

Additional Advice:

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	reddish-brown	
Appearance:	liquid	
Odor:	slight pungent	
Boiling Point:	~105 - 110 °C	220 - 230 °F
Melting Point:	Not available	
Vapor Pressure:	Not applicable	
Specific Gravity/Density:	1.26 - 1.48	
Vapor Density:	Not applicable	

9. PHYSICAL AND CHEMICAL PROPERTIES

Percent Volatile (% by wt.):	Not available
pH:	< 2
Saturation In Air (% By Vol.):	Not applicable
Evaporation Rate:	Not applicable
Solubility In Water:	negligible
Volatile Organic Content:	Not applicable
Flash Point:	Non Flammable
Flammable Limits (% By Vol):	Not applicable
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not available
Partition coefficient (n-octanol/water):	Not available
Odor Threshold:	Not available

10. STABILITY AND REACTIVITY

Stability:	Stable
Conditions To Avoid:	None known
Polymerization:	Will not occur
Conditions To Avoid:	Dangerous gases may accumulate in confined spaces.
Materials To Avoid:	Metals such as iron or steel which are subject to corrosion.
Hazardous Decomposition Products:	hydrochloric acid vapors (at high temperature) Thermal decomposition of dried residues - will produce hydrogen chloride gas.

11. TOXICOLOGICAL INFORMATION

Toxicological information for the product is found under Section 3. HAZARDS IDENTIFICATION.
Toxicological information on the regulated components of this product is as follows:

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

Hydrochloric acid has a 4-hour inhalation LC50 (rat) value of 3124 ppm (4.7 mg/L). Contact with hydrochloric acid solutions or mists can cause severe skin and eye irritation. Acute overexposure to hydrochloric acid vapor may cause severe eye and respiratory tract irritation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Test: Acute Immobilization (OECD 202)

Duration: 48 hr

Species: Water Flea (Daphnia magna)
27.9 mg/l EC50

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA 'listed hazardous waste' or has any of the four RCRA 'hazardous waste characteristics.' Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA 'listed hazardous waste'; information contained in Section 15 of this MSDS is not intended to indicate if the product is a 'listed hazardous waste.' RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this MSDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 2 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. Harsco encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. Harsco recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. Harsco has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Proper Shipping Name: Ferric Chloride Solution

Hazard Class: 8

Packing Group: III

UN/ID Number: UN2582

Transport Label Required: Corrosive

Hazardous Substances:

Component / CAS No.	Reportable Quantity of Product (lbs)
Ferric Chloride	2381 (RQ=1000)

TRANSPORT CANADA

Proper Shipping Name: Ferric Chloride Solution
Hazard Class: 8
Packing Group: III
UN Number: UN2582
Transport Label Required: Corrosive

ICAO / IATA

Proper Shipping Name: Ferric Chloride Solution
Hazard Class: 8
Packing Group: III
UN Number: UN2582
Transport Label Required: Corrosive
Packing Instructions/Maximum Net Quantity Per Package:
Passenger Aircraft: -
Cargo Aircraft: -

IMO

Proper Shipping Name: Ferric Chloride Solution
Hazard Class: 8
UN Number: UN2582
Packing Group: III
Transport Label Required: Corrosive

15. REGULATORY INFORMATION**INVENTORY INFORMATION**

United States (USA): All components of this product are included on the TSCA Chemical Inventory or are not required to be listed on the TSCA Chemical Inventory.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Union (EU): All components of this product are included on the European Inventory of Existing Chemical Substances (EINECS) or are not required to be listed on EINECS.

Australia: All components of this product are included in the Australian Inventory of Chemical Substances (AICS).

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: All components of this product are NOT included on the Japanese (ENCS) inventory.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory.

Philippines: All components of this product are included on the Philippine (PICCS) inventory or are not required to be listed on the Philippine inventory.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
Ferric Chloride 7705-08-0	37 - 42	None	1000	No	No
Hydrochloric acid 7647-01-0	<=1.0	500	5000	Yes	No

This product does not contain any components regulated under these sections of the EPA

PRODUCT HAZARD CLASSIFICATION UNDER SECTION 311 OF SARA

- Acute

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 0 - Materials that will not burn.

Reactivity: 1 - Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

Reasons For Issue:

Revised Section 9

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