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MATERIAL SAFETY DATA SHEET

HMIS RATINGS

Health Hazard: 3

Flammability Hazard: 0

Reactivity Hazard: 0

Rev. N/A

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Supersedes N/A

SECTION 1: PRODUCT IDENTIFICATION

Product Name: Ferric chloride solution

EMERGENCY TELEPHONE NUMBER: Chemtrec 1-800-424-9300 (24 hours)

SECTION 2: HAZARDOUS COMPONENT INFORMATION

<u>Hazardous Ingredients</u>	<u>CAS Reg No.</u>	<u>Wt. %</u>
Ferric chloride	7705-08-0	<50%

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: Reddish brown liquid, slight characteristic odor.. Corrosive - Causes eye and skin burns. Mists will cause respiratory tract irritation. Harmful if swallowed. Avoid contact with skin and eyes. Do not breathe mists.

Potential Health Effects:

Relevant Routes Of Exposure: Inhalation, Ingestion, Eye Contact, Skin Contact.

Acute Effects: General: Corrosive to all tissues

Ingestion: Will cause burns of the mouth and gastrointestinal tract.

Eyes: Corrosive to the eyes. Can cause permanent eye damage.

Inhalation: Mists will cause respiratory tract irritation.

Skin: Corrosive to the skin.

Carcinogenicity: None of the components of this product are listed by NTP, IARC or OSHA.

Target Organs: Ocular, respiratory, dermal, gastrointestinal (GI).

SECTION 4: FIRST AID PROCEDURES

First Aid Procedures

Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes.

Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention immediately.

Skin: Remove contaminated clothing and shoes. Wash skin with large amounts of water. If irritation occurs or persists, get medical attention. Wash clothing shoes before reuse. Dispose of shoes.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

Ingestion: Immediately rinse mouth with water. Get medical attention immediately. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person.

SECTION 5: FIRE HAZARDS

Unusual Fire and Explosion Hazards: May produce hydrogen chloride gas if heated.

Fire Fighting Procedures:

NIOSH approved positive pressure, self-contained breathing apparatus and full protective turn-out gear.

Evacuate personnel to an area upwind to avoid smoke and vapors.

Remove containers of this material if it can be done safely.

Use water to keep fire-exposed containers cool.

Protective clothing and equipment must be decontaminated if contact with the material or vapors has occurred.

Extinguishing Media: All common extinguishing media are suitable.

Conditions to Avoid: Not determined.

Hazardous Combustion Products: Heating to high temperatures may produce hydrogen chloride gas.

Flash Point: Not determined

Flammability Limits: **Lower:** Not determined **Upper:** Not determined

Autoignition Temperature: Not determined

SECTION 6: ACCIDENTAL RELEASE MEASURES

Pre-Entry Spill Procedure:

Shut off source of spill if it is safe to do so.

Review Section 3 - Hazards Identification and Section 8- Exposure Control/Personal Protection before proceeding with the clean up.

Clean Up and Containment:

Absorb small spills with noncombustible absorbent material.

Dike large spills and pump into suitable container drums or absorb with noncombustible absorbent material.
Put saturated absorbent into a suitable labeled open headed drum with a tight fitting lid.
Secure the drum cover and move the container to a safe holding area.

Check area for residual material and repeat clean up if detected.

Environmental Concerns: None known.

Treatment and Disposal:

Decontaminate or dispose of all protective clothing and equipment.
See Section 13 - Disposal Recommendations for disposal information.

Reporting Requirements:

See Section 15 for additional information.
Report all releases, which are likely to endanger the public health, harm the environment, or cause complaint to the appropriate State or Local officials.

SECTION 7: HANDLING AND STORAGE

General Measures:

Store at room temperature.
Avoid contact with common metals.

Materials or Conditions to Avoid:

Corrosive to most common metals, except titanium.
Contact with alkalis and alkali metals.
Elevated temperatures.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

General Hygienic Practices:

Do not get on eyes, skin, or clothing.
Do not breathe mists.
Wash thoroughly after handling.

Recommended Exposure Limits:

	ACGIH TLVs		OSHA PELs	
	TWA	STEL/CEIL (C)	TWA	STEL
Iron salts, soluble, as Fe	1 mg/m ³	Not established	Not established	Not established

Personal Protective Equipment:

Eyewear: Chemical goggles or face shield.

Skin: Gloves are required if there is a potential for skin contact. A plastic or rubber glove which provides a physical barrier to the powder is required. Use disposable spun polyolefin (e.g. Tyvek) coveralls or equivalent to protect against contact. Consult the glove and clothing manufacturers, suppliers and/or an

industrial hygienist for further information.

Respiratory Protection: Respiratory protection is required whenever air contamination (dust, mist, or vapors) is generated by the process. A NIOSH approved high efficiency toxic dust/mist/fume respirator is recommended.

Work Practices and Engineering Controls:

General room ventilation is adequate unless the process generates mists or fumes.

Workclothing should be removed in a change room on site and laundered professionally. Employees should shower and change into street clothes before leaving the facility.

Protective Measures During Repair and Maintenance:

No special measures are required.

Follow the recommendation for personal protective equipment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid.

Color: Reddish brown.

Odor: Characteristic.

Taste: Not determined.

pH: <1

Volatile (Wt. or Vol.), %: >50%.

Moisture Content, (Wt.) %: Not determined.

Solubility in Water: Soluble.

Solubility - other solvents: Not determined.

Specific Gravity/Bulk Density: Not determined.

Vapor Pressure: Not determined.

Vapor Density (air = 1): Not determined.

Evaporation Rate (butyl acetate =1): <1

Boiling Point: Not determined.

Melting Point: Not determined.

SECTION 10: STABILITY AND REACTIVITY

General Stability Considerations: Stable at room temperature.

Incompatible Materials: Material is acidic and will corrode most metals. Avoid contact with alkalis and alkali metals.

Hazardous Decomposition Products: Not determined

Hazardous Polymerization: Does not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity: No data is available for the Ferric chloride solution.
Ferric chloride: Oral LD₅₀ - rat = 316 mg/kg; Oral LD₅₀ - mouse = 200 mg/kg; Intravenous LC₅₀ mouse = 0.049 mg/m³

Mutagenicity/Genotoxicity Information: Ferric chloride as negative in a Rec-assay with Bacillus subtilis.

SECTION 12: ECOLOGICAL INFORMATION

Environmental Fate: No data available.

Ecotoxicity: No data available.

SECTION 13: DISPOSAL RECOMMENDATIONS

Waste Disposal Method: Dispose of material, liners, and containers in a manner in accordance with all applicable federal, state and local environmental regulations.

Empty Container Disposal: Empty container or liner must be triple rinsed prior to disposal. A properly rinsed container may be disposed of according to local regulations.

SECTION 14: TRANSPORTATION INFORMATION

U.S. DOT: Ferric Chloride, Solution [UN2582] [Corrosive]

SECTION 15: REGULATORY INFORMATION

SARA TITLE III: Section 302. Not listed.

Section 313. Not listed.

CERCLA Hazardous Substance: Ferric chloride - Reportable quantity (RQ) =1000 lb., anhydrous basis.

RCRA Hazardous Substance: RCRA designation: Not listed.

California Prop. 65 List: None of the components of this product are listed.

Massachusetts Substance List: - Ferric chloride - Listed.

New Jersey Right to Know Hazardous Substance List: - Ferric chloride - Listed.

Pennsylvania Hazardous Substance List: - Ferric chloride - Listed.

Canadian WHMIS List: - Ferric chloride - Listed.

SECTION 16: OTHER INFORMATION

None.

LIST OF ACRONYMS:

ACGIH: American Conference of Governmental Industrial Hygiene

AIHA WEEL: American Industrial Hygienists Association - Workplace Environmental Exposure Level

ANSI: American National Standards Institute

C: Ceiling

California Prop. 65: California Safe Drinking Water and Toxic Enforcement Act (Prop 65)

Canadian WHMIS: Canadian Workplace Hazardous Materials Information System Ingredient Disclosure

CASRN: Chemical Abstracts Service Registry Number

CERCLA: Comprehensive Emergency Response, Compensation and Liability Act

DEA: Drug Enforcement Administration

DOT: U. S. Department of Transportation

HMIS: Hazardous Materials Identification System

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association

IMO: International Maritime Organization

N/A: Not Applicable

NOR: Not Otherwise Regulated

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: OSHA Permissible Exposure Limit

RCRA: Resource Conservation and Recovery Act

RQ: Reportable Quantity

SARA: Superfund Amendment Reauthorization Act

STEL: Short-Term Exposure Limit

TLV: Threshold Limit Values (registered trademark of ACGIH)

TPQ: Threshold Planning Quantity

TSCA: Toxic Substances Control Act

TWA: Time Weighted Average

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty, or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.