SAFETY DATA SHEET

Ferric Chloride 38-40%

1. Product and Company Identification

Product Name	Ferric Chloride
Synonyms Iron	Iron Chloride Solution
MSDS Number	D24916
Company Identification	Aquachem of America Inc. PO Box 129 Little Chute, WI 54140
Telephone	Aquachem of America Inc. – 920-687-5238 CHEMTREC – 800.424.9300

NFPA diamond and HMIS ratings for this product may be found in section 16 of this Safety Data

2. Hazards Identification

Form	Liquid
Color	Reddish brown
Odor	Slight odor of iron/acid
OSHA/HCS	Status Material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200); corrosive
GHS Classification	Corrosive to metals (Category 1) Skin irritation (Category 2) Serious eye damage (Category 1) Acute aquatic toxicity (Category 2) Chronic aquatic toxicity (Category 2)
Pictogram	
Signal Word	Danger
Hazard Statement(s)	

H290	May be corrosive to metals.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

P234	Keep only in original container.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
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 or doctor/physician.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash before reuse.
P390	Absorb spillage to prevent material damage.
P501	Dispose of contents/ container to an approved waste disposal plant.

Potential Acute Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes severe eye burns.

See section 11 for more detailed information on health effects and symptoms

3. Composition/Information on Ingredients

Ingredient Name	CAS Number	WT %
Ferric Chloride	7705-08-0	37-42
Water	7732-18-5	Balance

4. First Aid Measures

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
Skin Contact	Wash off with soap and plenty of water. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Protection of First Aid Personnel	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear gloves while removing contaminated clothing. If it is suspected that dust, vapor, mist, or gas is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

5. Fire-fighting Measures

Flammability of the Product	Not flammable or combustible
Flash Point (Method)	None
Auto Ignition Temperature	None

Extinguishing Media

Suitable	Water spray, dry chemical, carbon dioxide, or alcohol resistant foam.
Not Suitable	No data available
Special Fire-fighting Procedures & Hazards	Wear chemical protective clothing and positive pressure, self-contained breathing apparatus. Approach upwind to avoid toxic vapors. Cool exterior of storage tanks.
Unusual Fire & Explosion Hazards	None known.

6. Accidental Release Measures

Personal Precautions	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge to the environment must be avoided.
Spill	Contain spillage, and then place in container for disposal according to local regulations.

7. Handling and Storage

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
Storage	Keep containers tightly closed in a dry and well-ventilate area.

8. Exposure Controls/Personal Protection

Ingredient Name	ACGIH TLV	OSHA PEL
Ferric Chloride	1 mg/m^3 – TWA	1 mg/m^3 – TWA

Engineering Measures	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. Maintain adequate ventilation. Keep levels below exposure limits.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Eyes and Face	Wear chemical safety goggles while handling this product. Wear additional eye protection such as a face shield when the possibility exists for eye contact with splashing or spraying liquid or airborne material.
Skin	Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: gauntlet-type, neoprene, nitrile.

9. Physical and Chemical Properties

Appearance	Reddish brown liquid
Odor	Slight odor of iron/acid
pH	Not determined
Water Solubility	Complete
Vapor Density (air = 1)	Not applicable
Evaporation rate (butyl acetate = 1)	> 1
Boiling Point (°F)	230 °F (110 °C)
Freezing Point (°F)	-50 °F (-45.6 °C) – *40% solution starts to crystallize with movement at 25 °F (-3.9 °C)…stationary values are 10 °F (-12.2 °C). 35% solution starts to crystallize with movement at -12 °F (-24.4 °C)…stationary values are -42 °F (-41.1 °C).*
Specific Gravity (H_20 = 1 @ 70 °F)	1.432 (40% ferric chloride)
Vapor Pressure (mm Hg, 20 °C)	Negligible
Volatile Organic (VOC) Content	Not applicable

10.Stability and Reactivity

Stable: X Unstable: Hazardous Polymerization: Occurs: Does Not Occur: X

Conditions to Avoid	Material is stable when stored properly handled. Material is acidic and corrodes most metals.
Materials to Avoid	Avoid contact with strong alkalis and oxidizers.
Decomposition Products	None

11.Toxicological Information

Eye	Causes severe eye burns.
Ferric Chloride	Eyes - rabbit – severe eye irritation
Dermal	May be harmful if absorbed through skin. Causes skin irritation.
Ferric Chloride	Dermal LD50 – rabbit – 2,000 mg/kg Skin corrosion/irritation: rabbit – irritating to skin
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ferric Chloride	Inhalation LC50 – no data available
Oral	May be harmful if swallowed.
Ferric Chloride	Oral LD50 – mouse – 1,300 mg/kg

Potential Chronic Health Effects

Carcinogenicity	This product contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification. Hydrochloric acid is a Group 3, not classifiable as to its carcinogenicity to human substance.
Mutagenicity	No data available
Teratogenicity	No data available
Fertility Effects	No data available
Target Organs	No data available

Over-exposure Signs/Symptoms

Spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema. Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery, a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma.

12.Ecological Information

Biodegradability	No data available
Ecotoxicity	Toxicity to fish: LC50 – Pimephales promelas (fathead minnow) – 21.84 mg/l - 96 h (ferric chloride) Toxicity to aquatic invertebrates: EC50 – Daphnia magna (water flea) – 9.6 mg/l - 48 h (ferric chloride) An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

13.Disposal Considerations

Waste Disposal	Dispose of in a permitted hazardous waste management facility following all local, state, and federal regulations.
RCRA	No component of this product is listed as a hazardous waste.

14.Transportation

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

US DOT 49 CFR 172.101	**Non-bulk Shipments (Drums/Totes)**	**Bulk Shipments (Tank Trucks/Rail Cars)**
Proper Shipping Name	Ferric Chloride Solution	Same
Hazard Class	8	Same
Identification Number	UN2582	Same
Packing Group	III	Same
Reportable Quantities	RQ=1000 lbs.	Same
Placards/Labels	Corrosive	Same

15.Regulatory Information

CERCLA / SARA Emergency Reporting	A spill or release of this material may trigger the emergency release reporting requirements under CERCLA (40 CFR Part 300) and/or SARA Title III (40 CFR Part 355). State or local reporting requirements may differ from federal requirements. Consult counsel for further guidance on your responsibilities under these laws. **Ferric Chloride CERCLA reporting amount – 1000 lbs.**
SARA Title III Section 313	This product does not require reporting.
Clean Water Act (CWA) Section 311	The following chemicals are listed under Section 311 as hazardous substances requiring the submission of a National Pollutant Discharge Elimination System (NPDES) permit application to EPA. **Product not listed**
TSCA – Toxic Substances Control Act	All components of this product are listed as “Active” on the Toxic Substances Control Act (TSCA) 8(b) Inventory.
RCRA – Resource Conservation and Recovery Act	The requirements of the federal hazardous waste regulations do not apply unless the waste fails to pass any of EPA’s four tests for determining hazardous wastes. Note: If this product is altered, it is the responsibility of the user to determine whether the material meets the criteria for hazardous waste at the time of disposal. **No components listed**

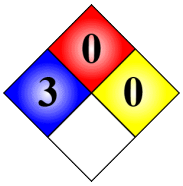
State Regulations

Massachusetts	**RTK Substances:** The following components are listed: Iron trichloride (CAS #7705-08-0)
New Jersey	**RTK Substances:** The following components are listed: Iron trichloride (CAS #7705-08-0)
Pennsylvania	**RTK Substances:** The following components are listed: Iron trichloride (CAS #7705-08-0)
California	**Proposition 65:** This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16.Other Information

Date of Issue	10/29/2013 | 4/10/2015-updated GHS classification, section 2 – updated ingredient list, section 3 | 2/12/2019-accuracy review (ST) | 10/10/2019 – updated TSCA statement, section 15 (RP) | 2/10/2021-updated address, section 1 (ST)

NFPA



HMIS

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PPE	

Caution: NFPA and HMIS ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although these ratings are not required on SDSs under29 CFR 1910.1200, the preparer may choose to provide them.
The customer is responsible for determining the PPE code for this material.

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