

FERRIC CHLORIDE

FCL

CAUTIONARY RESPONSE INFORMATION

Common Synonyms Ferric chloride, anhydrous Ferric chloride, hexahydrate Iron III chloride Iron perchloride Iron trichloride	Solid Greenish black Odorless Sinks and mixes with water.
<p>Keep people away. Avoid contact with solid and dust. Avoid inhalation. Notify local health and pollution control agencies. Protect water intakes.</p>	
Fire	Not flammable.
Exposure	<p>CALL FOR MEDICAL AID. DUST Irritating to eyes, nose and throat. If inhaled will cause coughing or difficult breathing. If in eyes, hold eyelids open and flush with plenty of water. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>SOLID Will burn skin and eyes. If swallowed will cause nausea and vomiting. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink or milk and have victim induce vomiting. IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.</p>
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge

2. CHEMICAL DESIGNATIONS

- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: FeCl₃ or FeCl₃·6H₂O
- 2.3 IMO/UN Designation: 8/1773
- 2.4 DOT ID No.: 1773
- 2.5 CAS Registry No.: 7705-08-0
- 2.6 NAERG Guide No.: 157
- 2.7 Standard Industrial Trade Classification: 52329

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Dust respirator if required; rubber apron and boots; chemical worker's goggles or face shield
- 3.2 **Symptoms Following Exposure:** Inhalation of dust may irritate nose and throat. Ingestion causes irritation of mouth and stomach. Dust irritates eyes. Prolonged contact with skin causes irritation and burns.
- 3.3 **Treatment of Exposure:** INGESTION: give large amounts of water; induce vomiting if large amounts have been swallowed. EYES: immediately flush with plenty of water for at least 15 min.; get medical attention promptly. SKIN: flush with water.
- 3.4 TLV-TWA: 1 mg/m³ (as iron)
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.
- 3.7 **Toxicity by Ingestion:** Grade 2; LD₅₀ = 0.5-5 g/kg (rat)
- 3.8 **Toxicity by Inhalation:** Currently not available.
- 3.9 **Chronic Toxicity:** Currently not available
- 3.10 **Vapor (Gas) Irritant Characteristics:** Not pertinent
- 3.11 **Liquid or Solid Characteristics:** Currently not available
- 3.12 **Odor Threshold:** Currently not available
- 3.13 **IDLH Value:** Not listed.
- 3.14 OSHA PEL-TWA: Not listed.
- 3.15 OSHA PEL-STEL: Not listed.
- 3.16 OSHA PEL-Ceiling: Not listed.
- 3.17 EPA AEGL: Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:**
Not flammable
- 4.2 **Flammable Limits in Air:** Not flammable
- 4.3 **Fire Extinguishing Agents:** Not pertinent
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Currently not available
- 4.5 **Special Hazards of Combustion Products:** Irritating hydrogen chloride fumes may form in fire.
- 4.6 **Behavior in Fire:** Currently not available
- 4.7 **Auto Ignition Temperature:** Not pertinent
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not pertinent
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** No reaction
- 5.2 **Reactivity with Common Materials:**
Water solutions are acidic and corrosive to most metals.
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Flush with water; rinse with dilute sodium bicarbonate or soda ash solutions.
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
1.2 ppm/144 hr/stickleback/harmful/fresh water
1 ppm/240 hr/stickleback/safe/fresh water
15 ppm/96 hr/daphnia/TL₅₀/fresh water
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):** None
- 6.4 **Food Chain Concentration Potential:** None
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: 2
Human Contact hazard: 0
Reduction of amenities: X

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** Anhydrous; Hydrate; Reagent; 46% solution in water
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Open
- 7.5 **IMO Pollution Category:** C
- 7.6 **Ship Type:** 3
- 7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Corrosive material
- 8.2 **49 CFR Class:** 8
- 8.3 **49 CFR Package Group:** III
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** 1000 pounds
- 8.7 **EPA Pollution Category:** C
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Yes

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Solid
- 9.2 **Molecular Weight:** 162.22 (anhydrous)
- 9.3 **Boiling Point at 1 atm:** Not pertinent (decomposes)
- 9.4 **Freezing Point:** Not pertinent
- 9.5 **Critical Temperature:** Not pertinent
- 9.6 **Critical Pressure:** Not pertinent
- 9.7 **Specific Gravity:** 2.8 at 20°C (anhydrous solid)
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** Not pertinent
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
- 9.12 **Latent Heat of Vaporization:** Not pertinent
- 9.13 **Heat of Combustion:** Not pertinent
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** (anhydrous) -360 Btu/lb = -200 cal/g = -8.4 X 10⁵ J/kg
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
	N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T		N O T P E R T I N E N T

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
34	75.599		N		N		N
36	76.799		O		O		O
38	78.000		T		T		T
40	79.200		P		P		P
42	80.400		E		E		E
44	81.599		R		R		R
46	82.799		T		T		T
48	84.000		I		I		I
50	85.200		N		N		N
52	86.400		E		E		E
54	87.599		N		N		N
56	88.799		T		T		T
58	90.000		E		E		E
60	91.200		N		N		N
62	92.400		T		T		T
64	93.599						
66	94.799						
68	96.000						
70	97.200						
72	98.400						
74	99.599						
76	100.799						
78	102.000						
80	103.200						
82	104.400						
84	105.599						