



# Safety Data Sheet

Section 1. Identification	
<b>Product Identification and Item Numbers:</b>	Ferric Chloride, 3.8 molal Solution (FC/1/1, and FC/1) Ferric Chloride, 3.8 Molar Solution (FC/2/1, and FC/2)
<b>Product Description:</b>	Ferric Chloride hexahydrate in purified water.
<b>Recommended use and restrictions on use:</b>	N/A
<b>Supplier:</b>	Delasco 608 13 <sup>th</sup> Avenue Council Bluffs, IA 51501 1-712-323-3269 <a href="http://www.delasco.com">www.delasco.com</a> <a href="mailto:questions@delasco.com">questions@delasco.com</a>
<b>In Case of Emergency, Contact:</b>	Chemtrec (24 hour) 1-800-424-9300

Section 2. Hazard(s) Identification	
<b>Classification:</b>	
Eye Damage (Category 1) Acute Toxicity – Oral (Category 4) Skin Corrosion (Category 1B) Aquatic Chronic (Category 3)	
<b>Labeling:</b>	
<b>Hazard symbol(s):</b>	 
	GHS07: exclamation mark      GHS05: corrosive
<b>Signal word:</b> <span style="margin-left: 150px;"><b>Danger!</b></span>	
<b>Hazard statements:</b>	
H302: Harmful if swallowed. H314: Causes severe skin burns and eye damage. H318: Causes serious eye damage. H412: Harmful to aquatic life with long lasting effects.	
<b>Precautionary statements:</b>	
P234 Keep only in original container. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. P280 Wear eye protection/ face protection. Wear protective gloves. P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. 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 Take off contaminated clothing and wash before reuse. P390 Absorb spillage to prevent material damage.	

<b>Section 3. Composition/Information on Ingredients</b>	
<b>Chemical Name and Concentration:</b>	Ferric chloride hexahydrate, 12% - 24% w/v Water, 76% - 88% w/v
<b>Other Names, Common Names, Synonyms:</b>	N/A
<b>CAS Number, other unique identifiers:</b>	Mixture: Ferric chloride hexahydrate CAS# 10025-77-1 Water CAS# 7732-18-5
<b>Other classified impurities or stabilizers:</b>	N/A
<b>Other ingredients posing health hazards:</b>	N/A
<b>Concentration of other hazardous ingredients:</b>	N/A

<b>Section 4. First-aid Measures</b>	
<b>Inhalation exposure:</b>	Move the exposed person to fresh air at once. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Skin exposure:</b>	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately. If necessary, wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
<b>Eye contact:</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
<b>Ingestion:</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

<b>Section 5. Fire Fighting Measures</b>											
<b>Suitable / unsuitable extinguishing media:</b>	N/A. Non-flammable.										
<b>Specific hazards / combustion products:</b>	When heated to decomposition it emits highly toxic fumes of hydrogen chloride. When heated to decomposition it emits irritating fumes of hydrogen chloride.										
<b>Special protective equipment and precautions for fire-fighters:</b>	Wear self-contained breathing apparatus for firefighting if necessary.										
<b>NFPA Hazard Classification</b>	<table> <tr> <td>Health – 3</td> <td>0-Minimal</td> </tr> <tr> <td>Flammability – 0</td> <td>1-Slight</td> </tr> <tr> <td>Instability – 1</td> <td>2-Moderate</td> </tr> <tr> <td></td> <td>3-Serious</td> </tr> <tr> <td></td> <td>4-Severe</td> </tr> </table>	Health – 3	0-Minimal	Flammability – 0	1-Slight	Instability – 1	2-Moderate		3-Serious		4-Severe
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<b>Section 6. Accidental Release Measures</b>	
<b>Personal precautions and protective equipment:</b>	<ul style="list-style-type: none"> <li>Corrosive. Wear appropriate personnel protective equipment, as stated in this document. Stop leak if you can do so without risk.</li> </ul>
<b>Environmental Precautions:</b>	<ul style="list-style-type: none"> <li>Stop leak if you can do it without risk.</li> <li>Prevent entry into drains, waterways, sewers, basements or confined areas.</li> </ul>
<b>Containment / clean up methods:</b>	<ul style="list-style-type: none"> <li>If mist may be generated, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels.</li> </ul>

<b>Section 7. Handling and Storage</b>	
<b>Precautions for safe handling:</b>	Avoid contact with skin and eyes. Avoid formation of mist. Provide appropriate exhaust ventilation if mist is formed. See precautionary statements included earlier in this document.
<b>Conditions for safe storage:</b>	Keep tightly closed in a cool, dry, well ventilated place. Keep upright to prevent leakage. Protect containers against physical damage.
<b>Incompatibilities to avoid:</b>	Strong oxidizing agents, Potassium, Alkali metals, Bases.

<b>Section 8. Exposure Controls and Personal Protection</b>	
<b>OSHA Permissible Exposure Limit (PEL):</b>	N/A
<b>Threshold Limit Value (TLV):</b>	TWA: 1 (mg(Fe)/m <sup>3</sup> ) from ACGIH (TLV) [United States]
<b>Other exposure limits:</b>	TWA: 1 (mg(Fe)/m <sup>3</sup> ) from NIOSH TWA: 1 (mg(Fe)/m <sup>3</sup> ) [Canada] TWA: 1 STEL: 2 (mg(Fe)/m <sup>3</sup> ) [United Kingdom (UK)]
<b>Engineering controls:</b>	If mist may be generated, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels.
<b>Personal protective equipment:</b>	<p><b>Respiratory Protection</b> If mist is being generated, be sure to use an approved/certified respirator or equivalent.</p> <p><b>Eye Protection</b> Splash goggles.</p> <p><b>Skin Protection</b> Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Wear other appropriate personal protective clothing to prevent skin contact. Consider synthetic apron.</p>
<b>Other personal protection measures:</b>	Provide nearby eyewash station and safety shower.

<b>Section 9. Physical and Chemical Properties</b>	
<b>Appearance (physical state, color, etc.):</b>	Brown liquid free of any visible lumps or sediment.
<b>Odor:</b>	Data not available.
<b>Odor threshold:</b>	Data not available.
<b>pH:</b>	Data not available.
<b>Melting point / freezing point:</b>	Data not available for this mixture.
<b>Initial boiling point and boiling range:</b>	Data not available for this mixture.
<b>Flash point:</b>	Data not available for this mixture.
<b>Evaporation rate:</b>	Data not available for this mixture.
<b>Flammability</b>	Data not available for this mixture.
<b>Upper / lower flammability or explosive limits:</b>	Data not available for this mixture.
<b>Vapor Pressure:</b>	Data not available for this mixture.
<b>Vapor density:</b>	Data not available for this mixture.
<b>Relative density:</b>	Data not available for this mixture.
<b>Solubility:</b>	Data not available for this mixture.
<b>Partition coefficient: n-octanol/water:</b>	Data not available for this mixture.
<b>Auto-ignition temperature:</b>	Data not available for this mixture.
<b>Decomposition temperature:</b>	Data not available for this mixture.
<b>Viscosity:</b>	Data not available for this mixture.

<b>Section 10. Stability and Reactivity</b>	
<b>Chemical stability:</b>	The product is stable.
<b>Possibility of hazardous reactions:</b>	Reactive with oxidizing agents.
<b>Conditions to avoid (static, shock, vibration...)</b>	Protect containers against physical damage.
<b>Incompatible materials:</b>	Reactive with oxidizing agents. Incompatible with alkali metals, allyl chloride, ethylene oxide, potassium, sodium.
<b>Hazardous decomposition products:</b>	Toxic and corrosive fumes of hydrogen chloride.

<b>Section 11. Toxicological Information</b>	
<b>Routes of exposure:</b>	Ingestion, inhalation, skin and/or eye contact.
<b>Acute Symptoms (acute):</b>	<ul style="list-style-type: none"> <li>• Inhalation: Hazardous in case of inhalation (lung corrosive). Causes irritation of the respiratory tract with possible burns.</li> <li>• Eye Contact: Hazardous in case of eye contact (corrosive). Causes eye irritation and burns. Higher exposures may lead to corneal or conjunctival ulceration.</li> <li>• Skin Contact: Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (corrosive). Slightly hazardous in case of skin contact (permeator). Causes irritation and burns of the skin. This compound has been infrequently associated with skin sensitization in humans.</li> <li>• Ingestion: Very hazardous in case of ingestion. Harmful if swallowed. Causes irritation of the gastrointestinal (digestive) tract with nausea, vomiting, diarrhea and hemorrhage and possible burns. May cause severe and permanent damage to the digestive tract. Delayed effects may include cardiovascular disturbances, liver damage, kidney damage, metabolic acidosis, cerebral coma and possible death. It may also affect behavior/cental nervous system (convulsions, lethargy).</li> </ul>
<b>Symptoms (chronic): Chronic effects from short and long term exposure:</b>	<ul style="list-style-type: none"> <li>• May cause damage to the following organs: kidneys, liver, urinary system.</li> <li>• May affect genetic material (mutagenic). May cause adverse reproductive effects based on animal test data.</li> <li>• Ingestion: May affect liver/spleen (increased iron levels and damage), urinary system (Kidneys, ureter, bladder), blood (changes in white blood cell count), central nervous system, and cardiovascular system.</li> <li>• Eyes: May cause eye discoloration.</li> </ul>
<b>Numerical measures of toxicity (e.g., acute toxicity estimates):</b>	LDL [Rat] - Route: Oral; Dose: 900 mg/kg
<b>NTP carcinogen:</b>	Not available
<b>EPA carcinogen:</b>	Not available
<b>ACGIH carcinogen:</b>	Not available
<b>IARC potential carcinogen:</b>	Not available
<b>OSHA carcinogen:</b>	Not available

<b>Section 12. Ecological Information (Non-mandatory)</b>	
Ecotoxicity (aquatic and terrestrial, where available):	Not available.
Persistence and degradability:	Not available.
Bioaccumulative potential:	Not available.
Mobility in soil:	Not available.
Other adverse effects:	Not available.

<b>Section 13. Disposal Considerations (Non-mandatory)</b>	
Safe methods of disposal:	Dispose of in accordance with federal, state and local environmental control regulations.

<b>Section 14. Transport Information (Non-mandatory)</b>						
US DOT	UN number:	UN2582	Class:	8	Packing Group:	III
UN proper shipping name:			Ferric Chloride Solution			
Packing group, if applicable:			III			
Environmental hazards (marine pollutant, etc...)			Not available			
Special transport precautions:			N/A			

<b>Section 15. Regulatory Information (Non-mandatory)</b>	
Specific safety, health, and environmental regulations:	N/A

<b>Section 16. Other information</b>	
Date of preparation or last revision:	September 18, 2018