SDS

Safety Data Sheet

1. IDENTIFICATION

Product Identifier: **Ferric Chloride, Anhydrous**

Product Code(s): **NC-8600, NC-3515, NC-11856,** F1025

Synonyms: Iron (III) Chloride

Recommended Use: For manufacturing, industrial, and laboratory use only. Use as a catalyst or as a laboratory solute.

Uses Advised Against: Not for food, drug, or household use.

Supplier: The Science Company
7625 W Hampden Ave #14 Lakewood CO 80227
Phone: 303-777-3777 Fax: 303-777-3331

Emergency Phone Number: (800) 255-3924 (CHEM-TEL)

2. HAZARDS IDENTIFICATION

Hazard Classifications:

Acute Toxicity – Oral:	Category 4
Skin Corrosion/Irritation:	Category 2
Eye Damage/Irritation:	Category 1
Sensitization – Skin:	Category 1
Corrosive to Metals:	Category 1

Signal Word: DANGER

Hazard Statements:
Harmful if swallowed.
Causes skin irritation.
Causes serious eye damage.
May cause an allergic skin reaction.
May be corrosive to metals.

Pictograms:

Precautionary Statements:

Prevention: Wash thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Wear protective gloves, protective clothing, eye protection, and face protection.
Avoid breathing dusts and fumes.
Contaminated work clothing must not be allowed out of the workplace.
Keep only in original container.

Response: If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth.
If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical attention.
Take off contaminated clothing and wash it before reuse.
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.
Absorb spillage to prevent material damage.

Storage: Store in a corrosive resistant container with a resistant inner liner.

Disposal: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified: Toxic to aquatic life. Avoid release to the environment.

Toxicity Statement: Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Ferric Chloride, Anhydrous	Iron (III) Chloride	7705-08-0	$FeCl_3$	≥ 98.5

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician if symptoms occur.

Ingestion: Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a poison center or doctor if you feel unwell.

Skin Contact: Remove contaminated clothing and shoes immediately. Wash skin with plenty of water for at least 15 minutes. Wash clothing before reuse. If skin irritation or rash occurs: Get medical attention.

Eye Contact: Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Immediately call a poison center or doctor.

General Advice: Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: Inhalation may cause irritation, burns, lung inflammation, and fluid in lungs. Ingestion may cause burns, tissue death, sore throat, abdominal pain, nausea, vomiting, diarrhea, convulsions, metabolic acidosis, and stomach bleeding. Skin contact may cause burns. Eye contact may cause burns. Prolonged or repeated exposure may affect the teeth and liver; may cause necrosis, pneumonia, and skin sensitization.

Immediate Medical Care/ Special Treatment: Get medical attention immediately if you feel unwell or are concerned. Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream, as it may scatter and spread fire.

Hazardous Combustion Products: Iron oxides, hydrogen chloride.

Specific Hazards: Excessive thermal conditions may cause decomposition and yield toxic and/or corrosive fumes. Contact with water may cause violent exothermic reaction.

Special Protective Equipment/ Precautions for Firefighters: As in any fire, wear MSHA/NIOSH-approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Protective Equipment: Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

Emergency Procedures: In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

Methods for Containment: Prevent entry into waterways, sewer, basements, or confined areas. Product should not be released to the environment. Contain and recover solid when possible.

Methods for Cleanup: Sweep up spill and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling: Wear personal protective equipment (see Section 8). Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes, and clothing. Limit exposure to moisture. Avoid generation of product dust. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product.

Storage: Store in a cool, dry, ventilated area. Store away from heat and incompatible materials (see section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with

all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Iron: ACGIH (TLV): 1 mg/m^3
NIOSH (IDLH): 1 mg/m^3

Engineering Controls: Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or safety goggles. Wear a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

Specific Requirements for Personal Protective Equipment: Ensure that glove material is compatible with this product. This information is available from glove manufacturers. If respiratory protection is required, use full face protection as well.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at 25 °C and standard pressure.

Appearance: Black, opaque solid.

Odor: Slight, characteristic.

Odor Threshold: No information found.

Formula Weight: 162.21

pH: No information found.

Melting/Freezing Point: 304 °C

Boiling Point/Range: No information found.

Decomposition Temperature: No information found.

Flash Point: Not applicable.

Auto-ignition Temperature: Not applicable.

Flammability: Not flammable.

Flammability/Explosive Limits: Not applicable.

Solubility: Soluble in water.

Vapor Pressure: No information found.

Vapor Density: No information found.

Specific Gravity:	2.85 (Water = 1)
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	No information found.

10. STABILITY AND REACTIVITY

Reactivity Data:	Corrosive. See Section 11.
Chemical Stability:	Stable under normal conditions. Hygroscopic.
Conditions to Avoid:	Heat, moisture, incompatible materials.
Incompatible Materials:	Oxidizers, strong bases, water, metals, cyanides.
Hazardous Decomposition Products:	Iron oxides, hydrogen chloride.
Possibility of Hazardous Reactions:	May react vigorously, violently, or explosively with the incompatible materials listed above. Excessive thermal conditions may yield hazardous decomposition products listed above. Contact with water may cause violent exothermic reaction.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure:	Inhalation, ingestion, skin contact, eye contact.
Acute Effects:	Corrosive. Harmful if swallowed or exposed to the skin or eyes. May be harmful if inhaled. May affect the gastrointestinal tract, blood, and liver.
Chronic Effects:	Prolonged or repeated exposure may affect the teeth and liver; may cause necrosis, pneumonia, and skin sensitization.
Toxicological Data:	LD_{50} Oral, Rat: 450 mg/kg LD_{50} Dermal, Rabbit: > 2000 mg/kg Corrosive to eyes based on animal data. Causes skin irritation based on animal data.
Symptoms of Exposure:	Irritation, burns, spasms, pneumonitis, pulmonary edema, necrosis, sore throat, abdominal pain, nausea, vomiting, diarrhea, hematemesis, metabolic acidosis, convulsions.
Carcinogenic Effects:	This product is not considered to cause cancer by IARC, ACGIH, NTP, or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	LC_{50}, Fathead Minnow (Pimephales promelas): 21.84 mg/L 96 h EC_{50}, Water Flea (Daphnia magna): 9.6 mg/L 48 h
Persistence and Degradability:	No information found.
Environmental Effects:	Toxic to aquatic organisms. Avoid release to the environment.

13. DISPOSAL INFORMATION

Disposal Instructions: All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8).

Contaminated Packaging: Because emptied containers may retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: D002: Waste Corrosive Material (pH ≤ 2 or pH ≥12.5 or corrosive to steel)

14. TRANSPORT INFORMATION

DOT:

UN Number: UN1773

Proper Shipping Name: Ferric chloride, anhydrous

Hazard Class: 8

Packing Group: III

ERG Number: 157

Environmental Hazard Regulations: Considered a marine pollutant by IMDG.

Other Transport Precautions: DOT Reportable Quantity: 1000 lb

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: No information found.

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: No information found.

CERCLA Reportable Quantities: Ferric Chloride, Anhydrous: 1000 lb

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

16. OTHER INFORMATION

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