

1. Identification

Product identifier	FERRIC CHLORIDE, ANHYDROUS, 97%	
Other means of identification		
Product code	2579	
Synonym(s)	IRON TRICHLORIDE * IRON(III) CHLORIDE	
Recommended use	professional, scientific and technical activities: other professional, scientific and technical activities	
Recommended restrictions	None known.	
Manufacturer/Importer/Supplier/Distributor information		
Company name	GFS Chemicals, Inc.	
Address	P.O. Box 245 Powell OH 43065 US	
Telephone	Phone	740-881-5501
	Toll Free	800-858-9682
	Fax	740-881-5989
Website	www.gfschemicals.com	
E-mail	service@gfschemicals.com	
Emergency phone number	Emergency Assistance	Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 2 (systemic toxicity)
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA hazard(s)	Not classified.	

Label elements



Signal word	Danger
Hazard statement	May be corrosive to metals. Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation. May cause damage to organs (systemic toxicity). Toxic to aquatic life. Toxic to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Use only outdoors or in a well-ventilated area. Keep only in original container. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves. Wear eye/face protection.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN: Wash with plenty of soap and water. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. Rinse mouth. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant container with a resistant inner liner.
Disposal	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)	Not classified.	
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2
Supplemental information		
Precautionary statement		
Prevention	Avoid release to the environment.	
Response	Collect spillage.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	

3. Composition/information on ingredients

Substances

Hazardous components	Common name and synonyms	CAS number	%
Chemical name			
FERRIC CHLORIDE	IRON TRICHLORIDE IRON(III) CHLORIDE	7705-08-0	100

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Wash off with soap and plenty of water. If skin irritation occurs: Get medical advice/attention.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. Get medical attention if irritation develops and persists.
Ingestion	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
Most important symptoms/effects, acute and delayed	Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Irritant effects.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water. Use extinguishing agent suitable for type of surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	None known.
Special protective equipment and precautions for firefighters	Wear suitable protective equipment.
Fire-fighting equipment/instructions	In the event of fire, cool tanks with water spray. Water runoff can cause environmental damage.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ensure adequate ventilation. Wear appropriate personal protective equipment.
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Methods and materials for containment and cleaning up

Refer to attached safety data sheets and/or instructions for use. Should not be released into the environment. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Prevent entry into waterways, sewers, basements or confined areas. Stop leak if you can do so without risk. Collect spillage. Absorb spillage to prevent material damage. Sweep up or vacuum up spillage and collect in suitable container for disposal. This material and its container must be disposed of as hazardous waste. Avoid dust formation. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations. Small Dry Spills: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. For waste disposal, see section 13 of the MSDS.

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage**Precautions for safe handling**

Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with skin. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store in corrosive resistant container with a resistant inner liner. Keep container tightly closed. Keep only in the original container. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection**Occupational exposure limits****US. ACGIH Threshold Limit Values**

Material	Type	Value
FERRIC CHLORIDE (CAS 7705-08-0)	TWA	1 mg/m ³

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
FERRIC CHLORIDE (CAS 7705-08-0)	TWA	1 mg/m ³

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. 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. An eye wash and safety shower must be available in the immediate work area.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection.

Skin protection

Hand protection Wear protective gloves.

Other Wear suitable protective clothing. Wear protective gloves.

Respiratory protection In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter.

Thermal hazards Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Do not get in eyes. Avoid contact with skin. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Crystalline. Metallic.

Physical state Solid.

Form Solid.

Color Dark grey.

Odor May have faint odor of hydrochloric acid.

Odor threshold Not available.

pH 2 (0.1 M solution in water)

Melting point/freezing point 579.2 °F (304 °C)

Initial boiling point and boiling range	600.8 °F (316 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	0.13332 kPa at 194.0 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	920 g/l
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	2.90 g/cm ³ estimated
Molecular formula	FeCl ₃
Molecular weight	162.22 g/mol
Specific gravity	2.9 at 25 °C

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	None known.
Incompatible materials	None known.
Hazardous decomposition products	Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	May cause irritation to the respiratory system.
Skin contact	Not available.
Eye contact	Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics Permanent eye damage including blindness could result. Irritant effects.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

Product	Species	Test Results
FERRIC CHLORIDE (CAS 7705-08-0)		
Acute		
<i>Oral</i>		
LD50	Mouse	450 mg/kg
	Rat	0.5 g/kg

Product	Species	Test Results
<i>Other</i> LD50	Mouse	49 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory sensitization	Due to lack of data the classification is not possible.
Skin sensitization	Due to lack of data the classification is not possible.
Germ cell mutagenicity	Due to lack of data the classification is not possible.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Respiratory tract irritation. May cause damage to organs (systemic toxicity).
Specific target organ toxicity - repeated exposure	Due to lack of data the classification is not possible.
Aspiration hazard	Due to lack of data the classification is not possible.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity	Toxic to aquatic life with long lasting effects. Components of this product are hazardous to aquatic life. Accumulation in aquatic organisms is expected.
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Product	Species	Test Results
FERRIC CHLORIDE (CAS 7705-08-0)		
Aquatic		
Crustacea	EC50	Water flea (Daphnia magna) 9.6 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus) 20.26 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability	None known.
Bioaccumulative potential	Not available.
Mobility in soil	Not available.
Other adverse effects	Not available.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Not available.
Hazardous waste code	D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN1773
UN proper shipping name	Ferric chloride, anhydrous, MARINE POLLUTANT
Transport hazard class(es)	8
Subsidiary class(es)	Not available.
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Labels required	8
Special provisions	IB8, IP3, T1, TP33
Packaging exceptions	154
Packaging non bulk	213
Packaging bulk	240

IATA

UN number	UN1773
UN proper shipping name	Ferric chloride, anhydrous
Transport hazard class(es)	8
Subsidiary class(es)	-
Packaging group	III
Environmental hazards	No
Labels required	Not available.
ERG Code	8L
Special precautions for user	Not available.

IMDG

UN number	UN1773
UN proper shipping name	FERRIC CHLORIDE, ANHYDROUS, MARINE POLLUTANT
Transport hazard class(es)	8
Subsidiary class(es)	-
Packaging group	III
Environmental hazards	
Marine pollutant	Yes
Labels required	Not available.
EmS	F-A, S-B
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

General information DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

DOT



IATA; IMDG





15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

FERRIC CHLORIDE (CAS 7705-08-0) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

Food and Drug Administration (FDA)
Total food additive
Direct food additive
GRAS food additive

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

FERRIC CHLORIDE (CAS 7705-08-0)

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

FERRIC CHLORIDE (CAS 7705-08-0)

US. Rhode Island RTK

FERRIC CHLORIDE (CAS 7705-08-0)

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

International Inventories

Country(s) 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
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision**Issue date** September-10-2013**Version #** 01**Further information** Not available.**Disclaimer** The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.**Revision Information** Product and Company Identification: Synonyms
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Transport Information: Proper Shipping Name/Packing Group
Regulatory Information: Safety Phrases
GHS: Classification