Ferric Chloride

Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 05/10/15 Date of Issue: 05/10/15 Version: 1.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Ferric Chloride

Intended Use of the Product

Municipal and industrial water and wastewater treatment for the removal of turbidity, color, suspended solids and phosphorus. Sludge conditioning, compaction and volume reduction. Oily wastewater clarification and dissolved air flotation. Emulsion breaking.

Name, Address, and Telephone of the Responsible Party

Manufacturer

CHEMTRADE LOGISTICS INC.
155 Gordon Baker Road
Suite 300
Toronto, Ontario M2H 3N5
For SDS Info: (416) 496-5856
www.chemtradelogistics.com

Emergency Telephone Number

Emergency Number : Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300
Chemtrade Emergency Contact: (866) 416-4404
For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Met. Corr. 1	H290
Acute Tox. 4 (Oral)	H302
Skin Corr. 1A	H314
Eye Dam. 1	H318
Aquatic Acute 2	H401
Aquatic Chronic 2	H411

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS05 GHS07

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) :
H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements (GHS-US) :
P234 - Keep only in original container.
P260 - Do not breathe mist, spray, vapors.
P264 - Wash hands, forearms and face 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, protective clothing, protective gloves.
P301+P312 - If swallowed: Call a POISON CENTER, or doctor if you feel unwell.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower.
P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER, or doctor.
P321 - Specific treatment (see Section 4).
P330 - Rinse mouth.
P363 - Wash contaminated clothing before reuse.
P390 - Absorb spillage to prevent material damage.
P391 - Collect spillage.
P405 - Store locked up.
P406 - Store in corrosive resistant container with a resistant inner liner.
P501 - Dispose of contents/container according to local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Other Hazards Not Contributing to the Classification: May be corrosive to respiratory tract. May be corrosive to metals.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Water	(CAS No) 7732-18-5	40 – 70 60 - 100	Not classified
Iron trichloride	(CAS No) 7705-08-0	10 - 30 30 - 50	Met. Corr. 1, H290 Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 2, H401 Aquatic Chronic 2, H411
Hydrogen chloride	(CAS No) 7647-01-0	0.1 - 1 1 - 5	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1A, H314 Eye Dam. 1, H318 STOT SE 3, H335

The specific chemical identity and/or exact percentage of composition has been withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard [29 CFR 1910.1200]. More than one of the ranges of concentration prescribed by Controlled Products Regulations has been used where necessary due to varying composition.
Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). IF exposed or concerned: Get medical advice/attention.

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician.

Ingestion: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Most Important Symptoms and Effects Both Acute and Delayed

General: Harmful if swallowed. Causes severe skin burns and eye damage. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

Inhalation: May be corrosive to the respiratory tract.

Skin Contact: Causes severe skin burns.

Eye Contact: Causes serious eye damage.

Ingestion: Swallowing a small quantity of this material will result in serious health hazard.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. A heavy water stream may spread burning liquid.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Product is not flammable.

Explosion Hazard: Not explosive, but may release flammable/explosive hydrogen gas on contact with metals.

Reactivity: Reacts with strong oxidants causing fire and explosion hazard. May react violently with alkalis.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Do not allow run-off from fire fighting to enter drains or water sources. Do not breathe fumes from fires or vapors from decompostion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO_2).

Other Information: May produce explosive hydrogen gas on contact with incompatibilities or upon thermal decomposition.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing vapor, mist, or spray.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so. Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Cautiously neutralize spilled liquid to prevent material damage. Absorb and/or contain spill with inert material, then place in suitable container. Contact competent authorities after a spill.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Store in orginal container. Keep in corrosion proof place.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Alkalis. Metals.

Specific End Use(s) Municipal and industrial water and wastewater treatment for the removal of turbidity, color, suspended solids and phosphorus. Sludge conditioning, compaction and volume reduction. Oily wastewater clarification and dissolved air flotation. Emulsion breaking.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Hydrogen chloride (7647-01-0)		
Mexico	OEL Ceiling (mg/m³)	7 mg/m³
Mexico	OEL Ceiling (ppm)	5 ppm
USA ACGIH	ACGIH Ceiling (ppm)	2 ppm
USA OSHA	OSHA PEL (Ceiling) (mg/m³)	7 mg/m³
USA OSHA	OSHA PEL (Ceiling) (ppm)	5 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	7 mg/m³
USA NIOSH	NIOSH REL (ceiling) (ppm)	5 ppm
USA IDLH	US IDLH (ppm)	50 ppm
Alberta	OEL Ceiling (mg/m³)	3 mg/m³
Alberta	OEL Ceiling (ppm)	2 ppm
British Columbia	OEL Ceiling (ppm)	2 ppm
Manitoba	OEL Ceiling (ppm)	2 ppm
New Brunswick	OEL Ceiling (mg/m³)	7.5 mg/m³
New Brunswick	OEL Ceiling (ppm)	5 ppm
Newfoundland & Labrador	OEL Ceiling (ppm)	2 ppm
Nova Scotia	OEL Ceiling (ppm)	2 ppm
Nunavut	OEL Ceiling (mg/m³)	7.5 mg/m³
Nunavut	OEL Ceiling (ppm)	5 ppm
Northwest Territories	OEL Ceiling (mg/m³)	7.5 mg/m³
Northwest Territories	OEL Ceiling (ppm)	5 ppm
Ontario	OEL Ceiling (ppm)	2 ppm
Prince Edward Island	OEL Ceiling (ppm)	2 ppm
Québec	PLAFOND (mg/m³)	7.5 mg/m³
Québec	PLAFOND (ppm)	5 ppm
Saskatchewan	OEL Ceiling (ppm)	2 ppm
Yukon	OEL Ceiling (mg/m³)	7 mg/m³
Yukon	OEL Ceiling (ppm)	5 ppm

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Safety glasses. Face shield. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or safety glasses. Chemical goggles or face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink, or smoke during use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Reddish Brown
Odor	:	Not available
Odor Threshold	:	Not available
pH	:	< 2
Melting Point	:	Not applicable
Freezing Point	:	-25 °C (-13 °F)
Boiling Point	:	Not available
Flash Point	:	Not applicable
Auto-ignition Temperature	:	Not applicable
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not flammable
Lower Flammable Limit	:	Not applicable
Upper Flammable Limit	:	Not applicable
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	1.26 - 1.48
Solubility	:	100%
Partition Coefficient: N-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not expected to present an explosion hazard due to mechanical impact
Explosion Data – Sensitivity to Static Discharge	:	Not expected to present an explosion hazard due to static discharge

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Reacts with strong oxidants causing fire and explosion hazard. May react violently with alkalis.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Alkalis. Metals.

Hazardous Decomposition Products: Carbon oxides (CO, CO_2). Thermal decomposition generates : Corrosive vapors. Chlorine. Hydrogen chloride.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Harmful if swallowed.

LD50 and LC50 Data:

Ferric Chloride	
ATE US (oral)	500.00 mg/kg body weight

Skin Corrosion/Irritation: Causes severe skin burns and eye damage. **pH:** < 2

Serious Eye Damage/Irritation: Causes serious eye damage. **pH:** < 2

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified
Potential Adverse Human Health Effects and Symptoms: Harmful if swallowed.
Symptoms/Injuries After Inhalation: May be corrosive to the respiratory tract.
Symptoms/Injuries After Skin Contact: Causes severe skin burns.
Symptoms/Injuries After Eye Contact: Causes serious eye damage.
Symptoms/Injuries After Ingestion: Swallowing a small quantity of this material will result in serious health hazard.
Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Iron trichloride (7705-08-0)	
LD50 Oral Rat	450 mg/kg

Hydrogen chloride (7647-01-0)	
LD50 Oral Rat	700 mg/kg
LD50 Dermal Rabbit	> 5010 mg/kg
LC50 Inhalation Rat (ppm)	781 ppm/4h (reported as 3124 ppm/1 h)

Water (7732-18-5)	
LD50 Oral Rat	> 90000 mg/kg

Hydrogen chloride (7647-01-0)	
IARC Group	3

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

Iron trichloride (7705-08-0)	
LC50 Fish 1	20.26 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [semi-static])
EC50 Daphnia 1	27.9 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	20.95 - 22.56 mg/l (Exposure time: 96 h - Species: Pimephales promelas [semi-static])
EC50 Daphnia 2	9.6 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Persistence and Degradability

Ferric Chloride	
Persistence and Degradability	Not established.

Bioaccumulative Potential

Ferric Chloride	
Bioaccumulative Potential	Not established.

Iron trichloride (7705-08-0)	
BCF Fish 1	2756 - 9622
Log Pow	-4

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: This material is hazardous to the aquatic environment. Keep out of sewers and waterways.
Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS FERRIC CHLORIDE, HYDROCHLORIC ACID)

Hazard Class : 8
Identification Number : UN3264
Label Codes : 8
Packing Group : II
Marine Pollutant : Marine pollutant
ERG Number : 154

14.2 In Accordance with IMDG

Proper Shipping Name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS FERRIC CHLORIDE, HYDROCHLORIC ACID)
Hazard Class : 8
Identification Number : UN3264
Packing Group : II
Label Codes : 8
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Marine pollutant : Marine pollutant
MFAG Number : 154

14.3 In Accordance with IATA

Proper Shipping Name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS FERRIC CHLORIDE, HYDROCHLORIC ACID)
Packing Group : II
Identification Number : UN3264
Hazard Class : 8
Label Codes : 8
ERG Code (IATA) : 8L

14.4 In Accordance with TDG

Proper Shipping Name : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS FERRIC CHLORIDE, HYDROCHLORIC ACID)
Packing Group : II
Hazard Class : 8
Identification Number : UN3264
Label Codes : 8
Marine Pollutant (TDG) : Marine pollutant

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Ferric Chloride	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard

Iron trichloride (7705-08-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Hydrogen chloride (7647-01-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500 (gas only)
SARA Section 313 - Emission Reporting	1.0 % (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

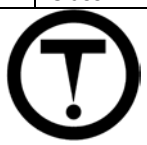
Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Iron trichloride (7705-08-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Hydrogen chloride (7647-01-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

Ferric Chloride	
WHMIS Classification	Class E - Corrosive Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects
 	

Iron trichloride (7705-08-0)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class E - Corrosive Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects

Hydrogen chloride (7647-01-0)	
Listed on the Canadian DSL (Domestic Sustances List) Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Class A - Compressed Gas Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class E - Corrosive Material

Water (7732-18-5)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 05/10/15

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2

STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H331	Toxic if inhaled
H335	May cause respiratory irritation
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

Party Responsible for the Preparation of This Document

CHEMTRADE LOGISTICS INC.
For SDS Info: (416) 496-5856

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.

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