MATERIAL SAFETY DATA SHEET

Chemical Product

Product Name: FERRIC CHLORIDE (Anhydrous)
CAS#: 7705-08-0
Synonym: Not Available.
Chemical Name: Ferric Chloride (Anhydrous)
Chemical Formula: FeCl3

Composition and Information on Ingredients

Name	S.K.U	% by Weight
FERRIC CHLORIDE (Anhydrous)	GCS-2764	100

Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC
EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to- mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Inhalation:

Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not Available.

Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion:

Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not applicable.

Flash Points:

Not applicable.

Flammable Limits:

Not applicable.

Products of

Combustion:

Not available.

Fire Hazards in Presence of Various Substances:

Slightly flammable to flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Slightly explosive in presence of heat.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Toxic oxides of nitrogen or ammonia gas may be formed in fires.

Special Remarks on Explosion Hazards: Containers may explode when heated.

Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Handling and Storage

Precautions:

Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from direct sunlight or strong incandescent light. Do not ingest. Do not breathe dust. Never add water to this product Avoid shock and friction. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment if ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:

Corrosive materials should be stored in a separate safety storage cabinet or room.

Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Safety glasses. Synthetic apron. Gloves (impervious). For most conditions, no respiratory protection should be needed. However, if material is heated or sprayed and if atmospheric levels exceed exposure guidelines, use an approved vapor (air purifying) respirator.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 1 CEIL: 2 (mg/m3) Consult local authorities for acceptable exposure limits.

Physical and Chemical Properties

P **Physical state and appearance**	**: Solid.**
Odor	: Not available.
Taste	: Not available.
Molecular Weight	: 162.21 g/mole
Color	: Not available.
pH (1% soln/water)	: 2 [Acidic.]
Boiling Point	: 316°C (600.8°F)
Melting Point	: 306°C (582.8°F)
Critical Temperature	: Not available.
Specific Gravity	: 2.9 (Water = 1)
Vapor Pressure	: Not applicable.
Vapor Density	: 5.61 (Air = 1)
Volatility	: Not available.
Odor Threshold	: Not available.
Water/Oil Dist. Coeff.	: Not available.
Ionicity (in Water)	: Not available.
Dispersion Properties	: See solubility in water.
Solubility	: Soluble in cold water.

Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature:
Not available.
Conditions of Instability:
Not available.
Incompatibility with
various substances:
The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure.

Corrosivity: Non-corrosive in presence of glass.
Special Remarks on

Reactivity: Not available.

Special Remarks on

Corrosivity: Not available.

Polymerization: No.

Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 900 mg/kg [Rat].

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Toxicological Data on Ingredients: Ferric chloride: ORAL (LD50): Acute: 900 mg/kg [Rat]. 1278 mg/kg [Mouse].

Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation:
The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Transformation Information

Land transport (ADR-RID)

Proper shipping name: FERRIC CHLORIDE, ANHYDROUS
UN N°: 1773
H.I. nr: 80
ADR - Class: 8
Labelling - Transport: 8 : Corrosive substance.
ADR - Group: III

Sea transport (IMDG) [English only]

Proper shipping name: FERRIC CHLORIDE, ANHYDROUS
UN N°: 1773
IMO-IMDG - Class or division: 8 : Corrosive substance.
IMO-IMDG - Packing group: III

Air transport (ICAO-IATA) [English only]

Proper shipping name: FERRIC CHLORIDE, ANHYDROUS
UN N°: 1773

IATA - Class or division: 8 : Corrosive substance.

IATA - Packing group: III

Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Ferric chloride Massachusetts RTK: Ferric chloride TSCA 8(b) inventory: Ferric chloride CERCLA: Hazardous substances: Ferric chloride

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS E: Corrosive solid. CLASS F: Dangerously reactive material.

DSCL (EEC): R36/38- Irritating to eyes and skin.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Additional Information

References: Not available.

Other Special Considerations: Not available.

Disclaimer:

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The information contained herein in good faith but makes no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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