SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Revision Date 04/02/2020 Version 1.7

SECTION 1.Identification

Product identifier

Product number	803945
Product name	Iron(III) chloride anhydrous for synthesis
CAS-No.	7705-08-0

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Chemical for synthesis

Details of the supplier of the safety data sheet

Company	Millipore (Canada) Ltd. | 2149 Winston Park Dr. | Oakville | Ontario L6H 6J8 | Canada | General Inquiries: +1 905 829 9500 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Corrosive to Metals, Category 1, H290
Acute toxicity, Category 4, Oral, H302
Skin irritation, Category 2, H315
Serious eye damage, Category 1, H318
Skin sensitization, Category 1, H317

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

Precautionary Statements
P234 Keep only in original container.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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/doctor.
P321 Specific treatment (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P390 Absorb spillage to prevent material damage.
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	$FeCl_3$	Cl_3Fe (Hill)
Molar mass	162.20 g/mol	

Hazardous ingredients

Chemical name (Concentration)
CAS-No.
iron(III) chloride (>= 90 % - <= 100 %)
7705-08-0

SECTION 4. First aid measures

Description of first-aid measures

Inhalation
After inhalation: fresh air.

Skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.
Irritation and corrosion, Allergic reactions
Risk of serious damage to eyes.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
Water, Foam
For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.
May not get in touch with:
Water
Caution! in contact with water product releases:
hydrochloric acid
Fire may cause evolution of:
Hydrogen chloride gas
Ambient fire may liberate hazardous vapors.

Advice for firefighters

Special protective equipment for fire-fighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Keep workplace dry. Do not allow product to come into contact with water.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
No metal containers.

Tightly closed. Dry.

Store below +30°C (+86°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Components

Basis	Value	Threshold limits	Remarks
iron(III) chloride 7705-08-0			
CAD AB OEL	Time Weighted Average (TWA):	1 mg/m³	Expressed as: as Fe
CAD BC OEL	Short Term Exposure Limit (STEL):	2 mg/m³	Expressed as: as Fe
	Time Weighted Average (TWA):	1 mg/m³	Expressed as: as Fe
CAD MB OEL	Time Weighted Average (TWA):	1 mg/m³	Expressed as: as Fe
CAD ON OEL	Time Weighted Average (TWAEV):	1 mg/m³	Expressed as: as Fe
OEL (QUE)	Time Weighted Average (TWA):	1.0 mg/m³	Expressed as: as Fe
CAD SK OEL	8 hour average contamination limit:	1 mg/m³	Expressed as: as Fe
	15 minute average contamination limit:	3 mg/m³	Expressed as: as Fe

Engineering measures
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures
Immediately change contaminated clothing. Apply skin- protective barrier cream.
Wash hands and face after working with substance.

Eye/face protection
Tightly fitting safety goggles

Hand protection
full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm

Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).
The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.
This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment:
protective clothing

Respiratory protection
required when dusts are generated.
Recommended Filter type: Filter B-(P2)
The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer.
These measures have to be properly documented.

SECTION 9. Physical and chemical properties

Physical state	powder
Color	green to black
Odor	stinging
Odor Threshold	No information available.
pH	1 at 200 g/l 68 °F (20 °C)

Melting point	583 °F (306 °C) (decomposition)
Boiling point	No information available.
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	1 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	2.89 g/cm3 at 77 °F (25 °C)
Relative density	No information available.
Water solubility	920 g/l at 68 °F (20 °C) Hydrolysis
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	583 °F (306 °C)
Viscosity, dynamic	Not applicable
Explosive properties	Not classified as explosive.
Oxidizing properties	Oxidizing potential
Sublimation point	579 °F (304 °C) at 1,000 hPa

Ignition temperature	not combustible
Bulk density	ca.1,000 kg/m3
Viscosity, kinematic	Not applicable
Corrosion	May be corrosive to metals.

SECTION 10. Stability and reactivity

Reactivity
See below

Chemical stability
sublimable
sensitive to moisture

Possibility of hazardous reactions
Risk of explosion with:
Alkali metals, Ethylene oxide
Violent reactions possible with:
ALLYL CHLORIDE
Aluminum, with, Heat.
Generates dangerous gases or fumes in contact with:
Water

Conditions to avoid
Strong heating (decomposition).
Exposure to moisture.

Incompatible materials
Copper, Light metals
Metals

Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Inhalation, Eye contact, Skin contact, Ingestion

Acute oral toxicity
LD50 Rat: 316 mg/kg (RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., Nausea, Vomiting

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity
LD50 Dermal Rat: > 2,000 mg/kg
(External MSDS)

Skin irritation
Rabbit
Result: irritating
(IUCLID)

Causes skin irritation.

Eye irritation
Rabbit
Result: Severe irritations
OECD Test Guideline 405

Causes serious eye damage.

Sensitization
May cause an allergic skin reaction.
Repeated dose toxicity
Subchronic toxicity

Genotoxicity in vivo
In vivo micronucleus test
Mouse
Result: negative
(External MSDS)

Genotoxicity in vitro
Ames test
Result: negative
Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): micronucleus.
Result: negative
Method: OECD Test Guideline 405

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information
Decomposition of the substance with tissue moisture.
The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Lepomis macrochirus (Bluegill sunfish): 20.3 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates
Immobilization EC50 Daphnia magna (Water flea): 9.6 mg/l; 48 h
OECD Test Guideline 202

Toxicity to algae
ErC50 Pseudokirchneriella subcapitata (green algae): 6.9 mg/l; 72 h
OECD Test Guideline 201

NOEC Pseudokirchneriella subcapitata (green algae): 2.4 mg/l; 72 h
OECD Test Guideline 201

Toxicity to fish (Chronic toxicity)
NOEC Pimephales promelas (fathead minnow): 0.33 mg/l; 33 d
(External MSDS)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOEC Daphnia magna (Water flea): 0.7 mg/l; 21 d
(External MSDS)

Persistence and degradability
No information available.

Bioaccumulative potential
No information available.

Mobility in soil
No information available.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1773
Proper shipping name	FERRIC CHLORIDE, ANHYDROUS
Class	8
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1773
Proper shipping name	FERRIC CHLORIDE, ANHYDROUS
Class	8
Packing group	III
Environmentally hazardous	--

Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1773
Proper shipping name	FERRIC CHLORIDE, ANHYDROUS
Class	8
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-B

SECTION 15. Regulatory information

United States of America

Canada

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

Notification status

TSCA:	All components of the product are listed in the TSCA-inventory.
DSL:	All components of this product are on the Canadian DSL

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

Labeling
Hazard pictograms

Signal Word
Danger

Hazard Statements
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

Precautionary Statements
Prevention
P280 Wear eye protection.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/ attention.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date04/02/2020

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