1. Identification

Product identifier used on the label

Ferric Chloride Anhydrous

Recommended use of the chemical and restriction on use

Recommended use*: Chemical
Recommended use*: Intermediate; process chemical; catalyst
Unsuitable for use: Not intended for sale to or use by the general public.

* The “Recommended use” identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number
24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Molecular formula:	FeCl(3)
Chemical family:	iron chloride
Synonyms:	Ferric Chloride Anhydrous; Iron III Chloride Flores Martis, Iron Trichloride

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (oral)	Acute toxicity

Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Skin Sens.	1	Skin sensitization

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H318	Causes serious eye damage.
H315	Causes skin irritation.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.

Precautionary Statements (Prevention):

P280	Wear protective gloves and eye protection or face protection.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Contaminated work clothing should not be allowed out of the workplace.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P301	IF SWALLOWED:
P330	Rinse mouth.
P332 + P313	If skin irritation occurs: Get medical attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.
Corrodes metals in the presence of water or moisture.

Labeling of special preparations (GHS):
May produce an allergic reaction. Contains: Nickel chloride (NiCl2)

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Iron trichloride
CAS Number: 7705-08-0
Content (W/W): >= 75.0 - <= 100.0%
Synonym: Eisen(III)-chlorid

iron dichloride
CAS Number: 7758-94-3
Content (W/W): > 0.0 - < 1.0%
Synonym: Eisen(II)-chlorid

Manganese chloride (MnCl2)
CAS Number: 7773-01-5
Content (W/W): > 0.0 - < 1.0%
Synonym: Mangan(II)-chlorid

Chromium chloride (CrCl3)
CAS Number: 10025-73-7
Content (W/W): > 0.0 - < 0.2%
Synonym: Chrom(III)-chlorid, Wasserfrei

copper dichloride
CAS Number: 7447-39-4
Content (W/W): > 0.0 - < 0.1%
Synonym: Copper dichloride

Nickel chloride (NiCl2)
CAS Number: 7718-54-9
Content (W/W): > 0.0 - < 0.1%
Synonym: No data available.

4. First-Aid Measures

Description of first aid measures

General advice:
If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention.

If on skin:
Immediately wash thoroughly with soap and water, seek medical attention.

If in eyes:
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

If swallowed:
Rinse mouth and then drink 200-300 ml of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.
irritates the eyes and respiratory tract, skin irritation, allergic symptoms

Information on: Iron trichloride
Symptoms: Overexposure may cause:, corneal injury, skin corrosion, severe pain, coughing, respiratory disorders, dyspnea, nausea, headache, vomiting, dizziness, diarrhea, abdominal cramps
---
Hazards: No hazard is expected under intended use and appropriate handling.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
dry powder

Unsuitable extinguishing media for safety reasons:
water

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
chlorine, can be emitted at > 200 °C
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:
Contaminated extinguishing water must be disposed of in accordance with official regulations. Avoid direct contact with water. Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered.

Impact Sensitivity:
Remarks: Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid contact with the skin, eyes and clothing. Avoid dust formation.

Environmental precautions

Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

This product is regulated by RCRA.

Methods and material for containment and cleaning up

For small amounts: Neutralize with lime.
For large amounts: Pick up in dry form. Dispose of contaminated material as prescribed.
For residues: Rinse away with water.

7. Handling and Storage

Precautions for safe handling

Keep container tightly sealed. Processing machines must be fitted with local exhaust ventilation.

Protection against fire and explosion:
The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities

Suitable materials for containers: High density polyethylene (HDPE), Low density polyethylene (LDPE), Polyester resin, glass reinforced (Palatal A410), enamelled, rubberized, Carbon steel (Iron), glass

Further information on storage conditions: Keep container tightly closed and in a cool place.

Storage stability:
Protect against moisture.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

zinc chloride	ACGIH, US:	TWA value 1 mg/m3 fumes/smoke ;
	ACGIH, US:	STEL value 2 mg/m3 fumes/smoke ;
	OSHA Z1:	PEL 1 mg/m3 fumes/smoke ;
Iron trichloride	ACGIH, US:	TWA value 1 mg/m3 (iron (Fe));
Chromium chloride (CrCl3)	OSHA Z1:	PEL 0.5 mg/m3 (Chromium (Cr));
	ACGIH, US:	TWA value 0.003 mg/m3 Inhalable fraction (chromium(III));
Nickel chloride (NiCl2)	ACGIH, US:	TWA value 0.1 mg/m3 Inhalable fraction (nickel (Ni));
	OSHA Z1:	PEL 1 mg/m3 (nickel (Ni));

Advice on system design:
Provide local exhaust ventilation to control dust.

Personal protective equipment

Respiratory protection:
Wear a NIOSH-certified (or equivalent) particulate respirator.

Hand protection:
Chemical resistant protective gloves, Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):, polyvinylchloride (PVC) - 0.7 mm coating thickness, Supplementary note: The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing., Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:
Tightly fitting safety goggles (chemical goggles).

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Eye wash fountains and safety showers must be easily accessible. Wear protective clothing as necessary to prevent contact. Avoid inhalation of dust. Hands and/or face should be washed before breaks and at the end of the shift. Take off immediately all contaminated clothing.

9. Physical and Chemical Properties

Form:	powder, crystalline	
Odour:	faint odour, pungent odour	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Colour:	green to black	
pH value:	1 (200 g/l, 20 °C)	(OECD Guideline 122)
Melting point:	dropped	
Freezing point:	No data available.	
Boiling point:	315 °C (1,013.25 hPa) Decomposes on heating. Literature data.	
Boiling range:	No data available.	
Sublimation temperature:	304 °C (1 bar) Literature data.	
Flash point:	not applicable, the product is a solid	
Flammability:	not highly flammable	(Directive 92/69/EEC, A.10)
Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Vapour pressure:	1 mbar (20 °C)	

Density:	2.89 g/cm3 (25 °C) Literature data.	
Bulk density:	approx. 1,000 kg/m3	
Vapour density:	The product is a non-volatile solid.	
Partitioning coefficient n-octanol/water (log Pow):	-4 (24 °C)	
Self-ignition temperature:	not self-igniting	
Thermal decomposition:	> 200 °C chlorine	
Viscosity, dynamic:	not applicable, the product is a solid	
Viscosity, kinematic:	not applicable, the product is a solid	
Particle size:	D10 3.3 µm D90 35.3 µm D50 11.7 µm	(ISO 13320-1) (ISO 13320-1) (ISO 13320-1)
Solubility in water:	744 g/l (0 °C) Literature data.	
Solubility (quantitative):	480 g/kg (20 °C)	
Molar mass:	162.2 g/mol	
Evaporation rate:	The product is a non-volatile solid.	

10. Stability and Reactivity

Reactivity

Corrosion to metals:
Corrosive effect on metals.

Oxidizing properties:
not fire-propagating (UN Test O.1 (oxidizing solids))

Chemical stability

Possibility of hazardous reactions
The product is chemically stable.
Explosive reaction with cyanides.

Conditions to avoid
Avoid moisture.

Incompatible materials
water, strong bases

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: Hydrogen chloride, metal compounds, Acid fumes, chlorides

Thermal decomposition:
> 200 °C
Possible thermal decomposition products:
chlorine

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: No other known acute effects.

Oral
Type of value: LD50
Species: mouse (female)
Value: > 300 - < 630 mg/kg

Inhalation
Study does not need to be conducted.

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 2,000 mg/kg (OECD Guideline 402)
No mortality was observed. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Irritation / corrosion
Assessment of irritating effects: Corrosive to the skin, eyes and respiratory system. Skin contact may result in dermatitis and deep burns.

Skin
Species: rabbit
Result: Irritant.
Method: BASF-Test
Data refer to a diluted aqueous solution of the substance.

Eye
Species: rabbit
Result: Risk of serious damage to eyes.
Method: BASF-Test
Data refer to a diluted aqueous solution of the substance.

Sensitization
Assessment of sensitization: May cause allergic skin reaction.

Information on: Chromium chloride (CrCl3)
Assessment of sensitization:
Sensitization after skin contact possible.

Species: mouse

Result: Non-sensitizing.
Method: OECD Guideline 429
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration Hazard
Study does not need to be conducted.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in animal studies. The substance may cause damage to the liver after repeated ingestion of high doses, as shown in animal studies.

Genetic toxicity
Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Carcinogenicity
Assessment of carcinogenicity: The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity: No reliable data are available concerning reproduction toxicity. The chemical structure does not suggest a specific alert for such an effect.

Teratogenicity
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
At the present state of knowledge, no negative ecological effects are expected. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.
The product gives rise to pH shifts.

Toxicity to fish
Study scientifically not justified.

Aquatic invertebrates
Study scientifically not justified.

Chronic toxicity to fish
Study scientifically not justified.

Chronic toxicity to aquatic invertebrates
Study scientifically not justified.

Assessment of terrestrial toxicity
No data available.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
other aquatic
activated sludge/EC50 (5 min): 500 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Not applicable for inorganic substances.

Elimination information

not applicable

Assessment of stability in water
In contact with water the substance will hydrolyse rapidly.

Information on Stability in Water (Hydrolysis)
$t_{1/2}$ 4.15 - 34 min, (calculated, pH 7)
The product has not been fully tested. The statements have been derived in parts from products of a similar structure or composition.

Bioaccumulative potential

Assessment bioaccumulation potential
Does not significantly accumulate in organisms.

Bioaccumulation potential
Bioconcentration factor: < 20 (28 d), Cyprinus carpio (OECD Guideline 305)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Mobility in soil

Assessment transport between environmental compartments
The substance will not evaporate into the atmosphere from the water surface.
No data available.
Study scientifically not justified.

Additional information

Adsorbable organically-bound halogen(AOX):
The Substance/product may have a halogenizing effect and therefore contribute to the OBH.

Other ecotoxicological advice:
Inhibition of degradation activity in activated sludge is not to be anticipated during correct introduction of low concentrations. Due to the pH-value of the product, neutralization is generally required before discharging sewage into treatment plants.

13. Disposal considerations

Waste disposal of substance:
Do not discharge into waterways or sewer systems without proper authorization. Dispose of in a RCRA-licensed facility. Dispose of in accordance with national, state and local regulations.

Container disposal:
Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. If containers are not empty, they must be disposed of in a RCRA-licensed facility.

RCRA: D002

14. Transport Information

Land transport
USDOT

Hazard class:	8
Packing group:	III
ID number:	UN 1773
Hazard label:	8
Proper shipping name:	FERRIC CHLORIDE, ANHYDROUS

Sea transport
IMDG

Hazard class:	8
Packing group:	III
ID number:	UN 1773
Hazard label:	8
Marine pollutant:	NO
Proper shipping name:	FERRIC CHLORIDE, ANHYDROUS

Air transport
IATA/ICAO

Hazard class:	8
Packing group:	III
ID number:	UN 1773
Hazard label:	8
Proper shipping name:	FERRIC CHLORIDE, ANHYDROUS

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

CERCLA RQ	CAS Number	Chemical name

1000 LBS	7646-85-7; 7705-08-0	zinc chloride; Iron trichloride
100 LBS	7758-94-3; 7718-54-9	iron dichloride; Nickel chloride (NiCl2)
10 LBS	7447-39-4; 7758-95-4	copper dichloride; Lead chloride (PbCl2)
1 LBS	7784-34-1	Arsenous trichloride

State regulations

State RTK	CAS Number	Chemical name
PA	7705-08-0	Iron trichloride
NJ	7705-08-0	Iron trichloride

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

WARNING: This product can expose you to chemicals including NICKEL COMPOUNDS, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

NFPA Hazard codes:
Health: 3 Fire: 0 Reactivity: 0 Special:

Assessment of the hazard classes according to UN GHS criteria (most recent version):

Acute Tox.	4 (oral)	Acute toxicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Skin Sens.	1	Skin sensitization

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2024/03/05

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