

1 Identification of the substance/mixture and of the company/undertaking

- **Product identifier**
- **Trade name:** Ferrous Chloride Tetrahydrate
- **Article number:** 158046
- **CAS Number:**
13478-10-9
- **EC number:**
231-843-4
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Research use only.
- **Details of the supplier of the safety data sheet**
- **Further information obtainable from:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazards identification

- **Classification of the substance or mixture**



corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H302 Harmful if swallowed.

- **Label elements**

- **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

- **Hazard pictograms**



GHS05



GHS07

- **Signal word** *Danger*

- **Hazard statements**

Harmful if swallowed.

Causes severe skin burns and eye damage.

- **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapours/spray.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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/doctor.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

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3 Composition/information on ingredients

- **Chemical characterisation: Substances**
- **CAS No. Description**
13478-10-9 Ferrous Chloride Tetrahydrate
- **Identification number(s)**
- **EC number: 231-843-4**

4 First aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Call for a doctor immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
- **Information about fire - and explosion protection:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 15 - 30 °C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:**
Store in nitrogen.
Desiccate.
Keep container tightly sealed.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.
- **Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists valid during the making were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses

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Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	<i>Powder</i>
· Colour:	<i>Light yellow</i>
· Odour:	<i>Indeterminate</i>
· Odour threshold:	<i>Not determined.</i>

· **pH-value:** *Not applicable.*

· **Change in condition**

· Melting point/Melting range:	<i>105 - 110 °C</i>
· Boiling point/Boiling range:	<i>Undetermined.</i>

· **Flash point:** *Not applicable.*

· **Flammability (solid, gaseous):** *Product is not flammable.*

· **Ignition temperature:**

· **Decomposition temperature:** *Not determined.*

· **Self-igniting:** *Not determined.*

· **Danger of explosion:** *Product does not present an explosion hazard.*

· **Explosion limits:**

· Lower:	<i>Not determined.</i>
· Upper:	<i>Not determined.</i>

· **Vapour pressure at 693 °C:** *13,3 hPa*

· Density at 20 °C:	<i>1,93 g/cm³</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not applicable.</i>
· Evaporation rate	<i>Not applicable.</i>

· **Solubility in / Miscibility with water:** *- Soluble.*

· **Partition coefficient (n-octanol/water):** *Not determined.*

· **Viscosity:**

· Dynamic:	<i>Not applicable.</i>
· Kinematic:	<i>Not applicable.</i>

· **Other information** *No further relevant information available.*

10 Stability and reactivity

· **Reactivity** *No further relevant information available.*

· **Chemical stability**

· **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*

· **Possibility of hazardous reactions** *No dangerous reactions known.*

· **Conditions to avoid** *No further relevant information available.*

· **Incompatible materials:** *No further relevant information available.*

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· **Hazardous decomposition products:** No dangerous decomposition products known.**11 Toxicological information**

- **Information on toxicological effects**
- **Acute toxicity**
- **Primary irritant effect:**
- **Skin corrosion/irritation** Caustic effect on skin and mucous membranes.
- **Serious eye damage/irritation**
Strong caustic effect.
Strong irritant with the danger of severe eye injury.
- **Respiratory or skin sensitisation** No sensitising effects known.
- **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- | | |
|----------------------------------|--|
| · UN-Number | |
| · ADR | UN1759 |
| · IMDG, IATA | UN3260 |
| · UN proper shipping name | |
| · ADR | 1759 CORROSIVE SOLID, N.O.S. (Ferrous Chloride Tetrahydrate) |

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· **IMDG** *CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Ferrous Chloride Tetrahydrate)*

· **IATA** *Corrosive solid, acidic, inorganic, n.o.s. (Ferrous Chloride Tetrahydrate)*

· **Transport hazard class(es)**

· **ADR**



· **Class** *8 Corrosive substances.*

· **Label** *8*

· **IMDG, IATA**



· **Class** *8 Corrosive substances.*

· **Packing group**

· **ADR, IMDG, IATA** *II*

· **Environmental hazards:** *Not applicable.*

· **Special precautions for user** *Warning: Corrosive substances.*

· **EMS Number:** *F-A,S-B*

· **Segregation groups** *Acids*

· **Stowage Category** *A*

· **Transport in bulk according to Annex II of Marpol and the IBC Code** *Not applicable.*

· **Transport/Additional information:**

· **ADR**

· **Limited quantities (LQ)** *1 kg*

· **Excepted quantities (EQ)** *Code: E2*

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 500 g

· **IMDG**

· **Limited quantities (LQ)** *5 kg*

· **Excepted quantities (EQ)** *Code: E1*

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

· **UN "Model Regulation":** *UN 1759 CORROSIVE SOLID, N.O.S., 8, II*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **GHS label elements**

The substance is classified and labelled according to the Globally Harmonised System (GHS).

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· **Hazard pictograms**

GHS05 GHS07

· **Signal word** *Danger*· **Hazard statements***Harmful if swallowed.**Causes severe skin burns and eye damage.*· **Precautionary statements***Do not breathe dust/fume/gas/mist/vapours/spray.**IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**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/doctor.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*· **Directive 2012/18/EU**· **Named dangerous substances - ANNEX I** *Substance is not listed.*· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** *Quality Control Dept.*· **Abbreviations and acronyms:***ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**EINECS: European Inventory of Existing Commercial Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 4: Acute toxicity, Hazard Category 4**Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B**Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1*