

SAFETY DATA SHEET

Version 5.7
 Revision Date 12/10/2015
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Iron(III) chloride

Product Number : F7134

Brand : Sigma-Aldrich

Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada Co.
 2149 Winston Park Drive
 OAKVILLE ON L6H 6J8
 CANADA

Manufacturer : Sigma-Aldrich Corporation
 3050 Spruce St.
 St. Louis, Missouri 63103
 USA

Telephone : +1 9058299500

Fax : +1 9058299292

Emergency Phone # (For both supplier and manufacturer) : +1-703-527-3887 (CHEMTREC)

Preparation Information : Sigma-Aldrich Corporation
 Product Safety - Americas Region
 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects Moderate skin irritant
 Moderate eye irritant

GHS Classification

Corrosive to metals (Category 1)
 Acute toxicity, Oral (Category 4)
 Acute toxicity, Dermal (Category 5)
 Skin corrosion/irritation (Category 2)
 Serious eye damage/eye irritation (Category 1)
 Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H290 May be corrosive to metals.
 H302 Harmful if swallowed.
 H313 May be harmful in contact with skin.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H401 Toxic to aquatic life.

Precautionary statement(s)

P280 Wear protective gloves/ eye protection/ face protection.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2
Flammability: 0
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Skin Harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ferric chloride

Formula : Cl_3Fe

Molecular weight : 162.20 g/mol

| CAS-No. | EC-No. | Index-No. | Concentration |
|-------------------------|-----------|-----------|---------------|
| Iron trichloride | | | |
| 7705-08-0 | 231-729-4 | - | <=100% |

4. FIRST AID MEASURES**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES**Conditions of flammability**

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Iron oxides

Explosion data - sensitivity to mechanical impact

No data available

Explosion data - sensitivity to static discharge

No data available

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage

Store under inert gas. Keep container tightly closed in a dry and well-ventilated place.

hygroscopic

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

| Components | CAS-No. | Value | Control parameters | Basis |
|------------------|--|-------|--------------------|---|
| Iron trichloride | 7705-08-0 | TWA | 1.000000 mg/m3 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| Remarks | Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required | | | |
| | | TWAEV | 1.000000 mg/m3 | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| | | TWAEV | 1.000000 mg/m3 | Canada. Ontario OELs |
| | | TWA | 1.000000 mg/m3 | Canada. British Columbia OEL |
| | | STEL | 2.000000 mg/m3 | Canada. British Columbia OEL |
| | | TWA | 1 mg/m3 | Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) |
| | Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required | | | |
| | | TWAEV | 1 mg/m3 | Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants |
| | | TWA | 1 mg/m3 | Canada. British Columbia OEL |
| | | STEL | 2 mg/m3 | Canada. British Columbia OEL |
| | | TWA | 1.000000 | USA. ACGIH Threshold Limit Values (TLV) |

| | | | | |
|--|--|-----|---------------------|---|
| | | | mg/m ³ | |
| | | TWA | 1 mg/m ³ | USA. ACGIH Threshold Limit Values (TLV) |

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|--------|-------------------|
| Form | solid |
| Colour | No data available |

Safety data

| | |
|------------------------------|-------------------|
| pH | No data available |
| Melting point/freezing point | 304 °C (579 °F) |
| Boiling point | No data available |
| Flash point | No data available |
| Ignition temperature | No data available |

| | |
|--|--|
| Auto-ignition temperature | No data available |
| Lower explosion limit | No data available |
| Upper explosion limit | No data available |
| Vapour pressure | < 1 hPa (< 1 mmHg) at 20 °C (68 °F) 1 hPa (1 mmHg) at 194 °C (381 °F) |
| Density | 2.800 g/cm ³ |
| Water solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Relative vapour density | 5.60 - (Air = 1.0) |
| Odour | No data available |
| Odour Threshold | No data available |
| Evaporation rate | No data available |

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

No data available

Conditions to avoid

No data available

Materials to avoid

Strong oxidizing agents, Potassium, Alkali metals, Bases, Exothermic in contact with water, Forms shock-sensitive mixtures with certain other materials.

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Iron oxides
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - Mouse - 1,300 mg/kg

Inhalation LC50

No data available

Dermal LD50

LD50 Dermal - Rabbit - > 2,000 mg/kg

Other information on acute toxicity

No data available

Skin corrosion/irritation

Skin - Rabbit - Irritating to skin.

Serious eye damage/eye irritation

Eyes - Rabbit - Severe eye irritation

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Teratogenicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available

Potential health effects

| | |
|-------------------|---|
| Inhalation | May be harmful if inhaled. Causes respiratory tract irritation. |
| Ingestion | Harmful if swallowed. |
| Skin | Harmful if absorbed through skin. Causes skin irritation. |
| Eyes | Causes eye irritation. |

Signs and Symptoms of Exposure

spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects

No data available

Additional Information

RTECS: LJ9100000

12. ECOLOGICAL INFORMATION

Toxicity

| | |
|---|---|
| Toxicity to fish | LC50 - Pimephales promelas (fathead minnow) - 21.84 mg/l - 96 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 9.6 mg/l - 48 h |

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

PBT and vPvB assessment

No data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1773 Class: 8 Packing group: III

Proper shipping name: Ferric chloride, anhydrous

Reportable Quantity (RQ): 1000 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 1773 Class: 8 Packing group: III EMS-No: F-A, S-B

Proper shipping name: FERRIC CHLORIDE, ANHYDROUS

Marine pollutant: No

IATA

UN number: 1773 Class: 8 Packing group: III

Proper shipping name: Ferric chloride, anhydrous

15. REGULATORY INFORMATION

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects Moderate skin irritant
Moderate eye irritant

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

16. OTHER INFORMATION

Text of H-code(s) and R-phrases mentioned in Section 3

Further information

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