

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 Version 2 Revision Date 12.12.2018

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

1.1 Product identifiers

Product name : Iron(III) chloride

Product Number : 5167

Brand : Better Equipped

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 7705-08-0

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : Not for sale to the general public

1.3 Details of the supplier of the safety data sheet

Company : Better Equipped,
Wrenbury Business Park,
Wrenbury Road,
Wrenbury,
Nantwich, Cheshire,
CW5 8EB, UK

Telephone +44 (0) 800 9707142

Fax +44 (0) 800 066 4443

E-mail address sales@betterequipped.co.uk

1.4 Emergency telephone number

Emergency Phone # +44 (0)1270 781238

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Corrosive to metals (Category 1), H290

Acute toxicity, Oral (Category 4), H302

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word

Danger

| | |
|--------------------------------|--|
| Hazard statement(s) | |
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |
| 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. |
| Supplemental Hazard Statements | none |

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

| | | |
|------------------|---|--------------------|
| Synonyms | : | Ferric chloride |
| Formula | : | Cl ₃ Fe |
| Molecular weight | : | 162.20 g/mol |
| CAS-No. | : | 7705-08-0 |
| EC-No. | : | 231-729-4 |

Hazardous ingredients according to Regulation (EC) No 1272/2008

| Component | Classification | Concentration |
|-------------------------|---|---------------|
| Iron trichloride | | |
| CAS-No. | 7705-08-0 | <= 100 % |
| EC-No. | 231-729-4 | |
| | Met. Corr. 1; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; H290, H302, H315, H318 | |

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

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

Take off contaminated clothing and shoes immediately. 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.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media

None stated.

5.2 Special hazards arising from the substance or mixture

Presents no specific fire danger.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- 6.1.1 For non-emergency personnel

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

- 6.1.2 For emergency responders

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

For personal protection see section 8.

6.2 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.

6.3 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.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 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.

7.1.2 Advice on general occupational hygiene:

- No smoking.
- Do not eat or drink.
- Wash hands after use.
- Remove contaminated clothing.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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

Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

| Component | CAS-No. | ValueForm of exposure | Control parameters | Basis |
|------------------|-----------|-----------------------|---------------------|--|
| Iron trichloride | 7705-08-0 | TWA | 1 mg/m ³ | UK. EH40 WEL - Workplace Exposure Limits |
| | | STEL | 2 mg/m ³ | UK. EH40 WEL - Workplace Exposure Limits |

8.1.3 The relevant DNELs and PNECs for the substance/s for the exposure scenarios:

DNEL's. The derived no- or minimum effect level (DN(M)EL) is the level of exposure above which a human should not be exposed to a substance. Please note that when more than one summary is provided, DN(M)EL values may refer to constituents of the substance and not to the substance as a whole.

Data for Workers

| | | |
|--------------------------------------|---|------------------------|
| INHALATION Exposure | Threshold | Most sensitive study |
| Systemic Effects | | |
| Long-term: | Insufficient data available (further information necessary) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| Local Effects | | |
| Long-term: | Insufficient data available (further information necessary) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| DERMAL Exposure | Threshold | Most sensitive study |
| Systemic Effects | | |
| Long-term: | (DNEL) 2.8 mg/kg bw/day | repeated dose toxicity |
| Acute /short term: | No hazard identified | |
| Local Effects | | |
| Long-term: | Low hazard (no threshold derived) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| EYE Exposure | | |
| Medium hazard (no threshold derived) | | |

Data for the General Population

| | | |
|--------------------------------------|---|------------------------|
| INHALATION Exposure | Threshold | Most sensitive study |
| Systemic Effects | | |
| Long-term: | Insufficient data available (further information necessary) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| Local Effects | | |
| Long-term: | Insufficient data available (further information necessary) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| DERMAL Exposure | Threshold | Most sensitive study |
| Systemic Effects | | |
| Long-term: | (DNEL) 1.4 mg/kg bw/day | repeated dose toxicity |
| Acute /short term: | No hazard identified | |
| Local Effects | | |
| Long-term: | Low hazard (no threshold derived) | |
| Acute /short term: | Low hazard (no threshold derived) | |
| ORAL Exposure | Threshold | Most sensitive study |
| Systemic Effects | | |
| Long-term: | (DNEL) 280 µg/kg bw/day | repeated dose toxicity |
| Acute /short term: | (DNEL) 20 mg/kg bw/day | acute toxicity |
| EYE Exposure | | |
| Medium hazard (no threshold derived) | | |

PNEC's. The Predicted No-Effect Concentration (PNEC) value is the concentration of a substance below which adverse effects in the environment are not expected to occur. Please note that when more than one summary is provided, PNEC values may refer to constituents of the substance and not to the substance as a whole.

| | |
|--------------------------------------|--------------------------------------|
| Hazard for Aquatic Organisms | |
| Freshwater | No hazard identified (2) |
| Intermittent releases (freshwater) | No hazard identified (2) |
| Marine water | No hazard identified (2) |
| Intermittent releases (marine water) | No hazard identified (2) |
| Sewage treatment plant (STP) | No hazard identified (2) |
| Sediment (freshwater) | No hazard identified (2) |
| Sediment (marine water) | No hazard identified (2) |
| Hazard for Air | |
| Air | No hazard identified (2) |
| Hazard for Terrestrial Organism | |
| Soil | No hazard identified (2) |
| Hazard for Predators | |
| Secondary poisoning | No potential for bioaccumulation (2) |

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use Local exhaust ventilation (LEV).

Personal protective equipment

Eye/face 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 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (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.

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.

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).

Control of environmental exposure

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | | |
|----|--|--|
| a) | Appearance | Form: Powder Colour: Yellowish brown crystalline solid |
| b) | Odour | No data available |
| c) | Odour Threshold | No data available |
| d) | pH | No data available |
| e) | Melting point/freezing point | Melting point/range: 304 °C |
| f) | Initial boiling point and boiling range | No data available |
| g) | Flash point | No data available |
| h) | Evaporation rate | No data available |
| i) | Flammability (solid, gas) | No data available |
| j) | Upper/lower flammability or explosive limits | No data available |
| k) | Vapour pressure | < 1 hPa at 20 °C 1 hPa at 194 °C |
| l) | Vapour density | 5.60 - (Air = 1.0) |
| m) | Relative density | 2.800 g/cm ³ |
| n) | Water solubility | No data available |
| o) | Partition coefficient: n- octanol/water | No data available |
| p) | Auto-ignition temperature | No data available |
| q) | Decomposition temperature | No data available |
| r) | Viscosity | No data available |
| s) | Explosive properties | No data available |
| t) | Oxidizing properties | No data available |

9.2 Other safety information

Relative vapour density 5.60 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity

Corrosive to metals

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

None under normal processing

10.4 Conditions to avoid

Avoid moisture

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

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

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Mouse - 1,300 mg/kg

LD50 Dermal - Rabbit - > 2,000 mg/kg
(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: 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

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: LJ9100000

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.

SECTION 12: Ecological information

12.1 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

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Toxic to aquatic life.

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Unused product may be returned and reused, in addition to disposal.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1773

IMDG: 1773

IATA: 1773

14.2 UN proper shipping name

ADR/RID: FERRIC CHLORIDE, ANHYDROUS

IMDG: FERRIC CHLORIDE, ANHYDROUS

IATA: Ferric chloride, anhydrous

14.3 Transport hazard class(es)

ADR/RID: 8

IMDG: 8

IATA: 8

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

14.6 Special precautions for user

No data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

N/A

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information**Full text of H-Statements referred to under sections 2 and 3.**

| | |
|------|-----------------------------|
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H318 | Causes serious eye damage. |

Revisions made since previous version of data sheet:

The following sections of this data sheet have been updated:

1.1, 1.2, 4.1, 5.1, 6.1, 7.1, 8.1, 8.2, 11, 12, 13, 14.7, 16

We strongly recommend reading the entire data sheet for this chemical in preparation ahead of use.

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Better Equipped and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.