



Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

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

1.1. Product identifier

Code: **600-015**
Product name: **FERRIC CHLORIDE 40%**

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

Intended use: **Professional industrial use**

1.3. Details of the supplier of the safety data sheet

Name: **Electron Electronics**
Full address: **11 Kiln Lane, Brockham, Betchworth, Surrey**
District and Country: **RH3 7LX
United Kingdom**
Tel. **+44 (0) 1737 841568**

e-mail address of the competent person responsible for the Safety Data Sheet: **sales@electronelec.co.uk**

1.4. Emergency telephone number

For urgent inquiries refer to: **+44 (0) 1737 841568 - 09.00 - 16: 00 Monday to Friday - or you can call the nearest hospital showing the SDS**

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830. Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

| | | |
|--|------|-----------------------------|
| Substance or mixture corrosive to metals, category 1 | H290 | May be corrosive to metals. |
| Acute toxicity, category 4 | H302 | Harmful if swallowed. |
| Serious eye damage, category 1 | H318 | Causes serious eye damage. |
| Skin irritation, category 2 | H315 | Causes skin irritation. |

2.2. Label elements



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Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



Signal words:

Warning

Hazard statements:

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.

Precautionary statements:

P234 Keep only in original container.
P270 Do not eat, drink or smoke when using this product.
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.
P501 Dispose of contents / container in accordance with the regulations on hazardous waste.

Contains: FERRIC CHLORIDE

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

| Identification | x = Conc. % | Classification 1272/2008 (CLP) |
|---------------------------|-------------|---|
| FERRIC CHLORIDE | | |
| CAS 7705-08-0 | 30 ≤ x < 50 | Met. Corr. 1 H290, Acute Tox. 4 H302, Eye Dam. 1 H318, Skin Irrit. 2 H315 |
| EC 231-729-4 | | |
| INDEX - | | |
| Reg. no. 01-2119497998-05 | | |

The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures



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4.1. Description of first aid measures

EYES: Irrigate copiously with clean, fresh water for at least 15 minutes. Seek medical advice.

SKIN: Wash immediately with plenty of water and soap. Remove contaminated clothing. If irritation persists, seek medical attention. Wash contaminated clothing before using them again.

INHALATION: Bring the person to open air. If breathing is irregular, seek medical advice.

INGESTION: Obtain immediate medical attention showing the safety data sheet. Do not induce vomiting. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Information not available

4.3. Indication of any immediate medical attention and special treatment needed

Follow doctor's orders

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE

Do not breathe combustion products.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Chlorides.

5.3. Advice for firefighters

GENERAL INFORMATION

Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS

Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.

Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any



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contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.

Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)

Information not available

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

GBR United Kingdom EH40/2005 Workplace exposure limits (Third edition,published 2018)

FERRIC CHLORIDE

Threshold Limit Value

| Type | Country | TWA/8h | | STEL/15min | |
|------|---------|--------|-----|------------|-----|
| | | mg/m3 | ppm | mg/m3 | ppm |
| WEL | GBR | 1 | | 2 | |

Legend:



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(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves (see standard EN 374).

The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category III professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear a hood visor or protective visor combined with airtight goggles (see standard EN 166).

In the presence of risks of exposure to splashes or squirts during work, adequate mouth, nose and eye protection should be used to prevent accidental absorption.

RESPIRATORY PROTECTION

If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, use a mask with a type B filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387). In the presence of gases or vapours of various kinds and/or gases or vapours containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required.

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|--------------------------------|---------------|
| Appearance | liquid |
| Colour | dark brown |
| Odour | Not available |
| Odour threshold | Not available |
| pH | <2 |
| Melting point / freezing point | -2 °C |
| Initial boiling point | > 100 °C |



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| | |
|--|------------------|
| Boiling range | Not available |
| Flash point | > 60 °C |
| Evaporation Rate | Not available |
| Flammability of solids and gases | Not available |
| Lower inflammability limit | Not available |
| Upper inflammability limit | Not available |
| Lower explosive limit | Not available |
| Upper explosive limit | Not available |
| Vapour pressure | Not available |
| Vapour density | Not available |
| Relative density | 1,2-1,45 |
| Solubility | soluble in water |
| Partition coefficient: n-octanol/water | Not available |
| Auto-ignition temperature | Not available |
| Decomposition temperature | Not available |
| Viscosity | Not available |
| Explosive properties | Not available |
| Oxidising properties | Not available |

9.2. Other information

| | |
|------------------------------|---|
| VOC (Directive 2010/75/EC) : | 0 |
| VOC (volatile carbon) : | 0 |

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

FERRIC CHLORIDE

May react with: alkalis,metals.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid

None in particular. However the usual precautions used for chemical products should be respected.



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10.5. Incompatible materials

FERRIC CHLORIDE

Avoid contact with: strong acids, strong alkalis, oxidising substances, metals.

10.6. Hazardous decomposition products

FERRIC CHLORIDE

In decomposition develops: hydrochloric acid, chlorides.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:
Not classified (no significant component)
LD50 (Oral) of the mixture:
900,00 mg/kg
LD50 (Dermal) of the mixture:
Not classified (no significant component)

FERRIC CHLORIDE

LD50 (Oral) 450 mg/kg Rat

LD50 (Dermal) > 2000 mg/kg Rat

SKIN CORROSION / IRRITATION



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Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

RESPIRATORY OR SKIN SENSITISATION

Does not meet the classification criteria for this hazard class

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

SECTION 12. Ecological information

12.1. Toxicity

Information not available

12.2. Persistence and degradability

Information not available

12.3. Bioaccumulative potential

Information not available



12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

14.1. UN number

ADR / RID, IMDG, 2582
IATA:

14.2. UN proper shipping name

ADR / RID: FERRIC CHLORIDE SOLUTION
IMDG: FERRIC CHLORIDE SOLUTION
IATA: FERRIC CHLORIDE SOLUTION

14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8





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14.4. Packing group

ADR / RID, IMDG, III
IATA:

14.5. Environmental hazards

ADR / RID: NO
IMDG: NO
IATA: NO

14.6. Special precautions for user

| | | | |
|------------|---------------------------------------|-------------------------|------------------------------|
| ADR / RID: | HIN - Kemler: 80 | Limited Quantities: 5 L | Tunnel restriction code: (E) |
| IMDG: | Special Provision: - EMS: F-A, S-B | Limited Quantities: 5 L | |
| IATA: | Cargo: | Maximum quantity: 60 L | Packaging instructions: 856 |
| | Pass.: | Maximum quantity: 5 L | Packaging instructions: 852 |
| | Special Instructions: | A3, A803 | |

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Information not relevant

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EC: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product
Point 3

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH)



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None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

| | |
|----------------------|--|
| Met. Corr. 1 | Substance or mixture corrosive to metals, category 1 |
| Acute Tox. 4 | Acute toxicity, category 4 |
| Eye Dam. 1 | Serious eye damage, category 1 |
| Skin Irrit. 2 | Skin irritation, category 2 |
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H318 | Causes serious eye damage. |
| H315 | Causes skin irritation. |

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%



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- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EU) 1907/2006 (REACH) of the European Parliament
 2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
 3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
 4. Regulation (EU) 2015/830 of the European Parliament
 5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
 6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology
 - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
 - ECHA website

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

Changes to previous review:

The following sections were modified:

01 / 02 / 03 / 04 / 05 / 07 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.