



# Material Safety Data Sheet

## Ferrous Sulphate Heptahydrate

### (Dried- FG20)

Edition: 11/04/2018

In compliance with REACH Regulation (EC) 1907/2006

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#### 1) Identification of substance/preparation and of the company undertaking

Material	Ferrous Sulphate Heptahydrate
Synonyms:	Ferrogranul 20, FG20, Iron (2+) Sulphate Heptahydrate
EC No	231-753-5
CAS No	7782-63-0
REACH Registration No	01-2119513203-57-xxxx
Index No	026-003-01-4
Company	Inoxia Ltd 45.7 Dunsfold Park Stovolds Hill Cranleigh Surrey GU6 8TB Tel: 02032 909990 safety@inoxia.co.uk www.inoxia.co.uk

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

##### Relevant identified uses

Precipitant and flocculant  
Municipal sewage treatment  
Water treatment  
Use in land remediation  
Chromate reduction in cement  
Fertiliser production and Chlorosis control

##### Uses advised against

None

## 2) Hazards identification.

### 2.1. Classification

<b>Hazard Classification: CLP regulations (EC)1272/2008</b>			
Name	Hazard Class	Hazard Category	Hazard Statement (code)
Ferrous Sulphate	Acute toxicity- oral	Acute Tox. 4	H302: Harmful if swallowed
	Skin irritation	Skin Irrit. 2	H315: Causes skin irritation
	Serious damage/eye irritation	Eye Irrit. 2	H319: Causes serious eye irritation

### 2.2. Label according to CLP regulations (EC)1272/12008

GHS07: Exclamation mark:



Signal word: Warning

#### **Hazard-determining components of labelling:**

Ferrous sulphate heptahydrate

#### **Hazard statements:**

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

#### **Precautionary statements:**

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

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.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

## 3) Composition/information on ingredient

Substance: Ferrous Sulphate

CAS-No: 7782-63-0

EC No: 231-753-5

Registration No: 01-21 19513203-57-XXXX

Classification (CLP Regs): H302, H315, H319

Index Number: 026-003-01-4

## 4) First Aid Measures

### 4.1. Description of first aid measures

**First-aid measures after inhalation:** Supply fresh air. If symptoms persist, call a doctor.

**First-aid measures after skin contact:** Instantly wash with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor.

**First-aid measures after eye contact:** Rinse immediately with plenty of lukewarm water, also under the eyelids, for several minutes, consult a doctor.

**First-aid measures after ingestion:** Rinse out mouth and then drink plenty of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects

Can be acutely toxic but it's main symptoms will be irritation to the eye.

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

Seek medical attention if symptoms persist.

## 5) Fire Fighting

### 5.1. Extinguishing media

**Suitable extinguishing agents:** Use fire fighting measures that suit the environment. CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet.

### 5.2. Special hazards arising from the substance or mixture

Sulphur dioxide (SO<sub>2</sub>).

### 5.3. Advice for firefighters

**Protective equipment:** In the event of fire, wear self-contained breathing apparatus. Firefighters must wear fire resistant personal protective equipment.

## 6) Accidental Release Measures

### 6.1. Personal precautions

Refer to protective measures listed in section "Handling and Storage". Wear protective suit and boots, if dust, aerosols or mist are formed, use half mask with combination filter B/P2.

### 6.2. Environmental precautions

Cover the drains to prevent the product from entering the environment. If the product contaminates rivers and lakes or drains inform respective authorities. Restrict the spread of the spillage by using inert absorbent material (sand, gravel) solutions only.

### 6.3. Methods and material for containment and cleaning up:

Remove larger spills using a vacuum truck. Dilute residues with water and neutralise with lime or limestone powder. Sweep or shovel up smaller spills and residues. Must be disposed of in accordance with local and national regulations.

## 6.4. Reference to other sections

See Section 8 for information on personal protection equipment. See Section 13 for information on disposal.

## 7) Handling and Storage

### 7.1. Precautions for safe handling:

The work place and work methods shall be organised in such a way that direct contact with the product is prevented or minimised. Wear gloves in a suitable material such as PVC, Neoprene or Natural rubber. Please observe the instructions regarding permeability and breakthrough time, which are provided by the supplier of the gloves. Also consider the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time. Tightly fitting safety goggles must be worn.

**Information about protection against explosions and fires:** The product is non-flammable.

### 7.2. Conditions for safe storage, including any incompatibilities

**Requirements to be met by storerooms and containers:** Plastic material - Plastic (PE, PP, PVC), Fiberglass-reinforced polyester, Epoxy-coated concrete, Titanium, Acidproof or rubber-coated steel.

**Materials to avoid-** Non acid-proof metals (such as aluminium, copper and iron), Bases, Unalloyed steel, Galvanised surfaces.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** Keep away from incompatible products. Avoid freezing. Protect from heat and direct sunlight. Store under dry conditions. Storage temperature <math><30^{\circ}\text{C}</math>.

### 7.3. Specific end use(s):

There are no further specific end uses than those named in section 1.2.

## 8) Exposure Controls/Personal Protection

### 8.1. Control parameters

**Components with critical values that require monitoring at the workplace:**

**CAS: 7782-63-0 Ferrous Sulphate Heptahydrate**

WEL Short-term value:  $2 \text{ mg/m}^3$

Long-term value:  $1 \text{ mg/m}^3$

as Fe

**DNELs**

**Worker**

Systemic long-term effects, dermal:  $13.95 \text{ mg/kg/d}$

**Consumer**

Acute systemic effects, oral:  $99.6 \text{ mg/kg/d}$

Systemic long-term effects, oral:  $1.4 \text{ mg/kg/d}$

Systemic long-term effects, dermal:  $6.97 \text{ mg/kg/d}$

**PNECs**

Iron is an essential trace element for fish, aquatic invertebrates and plants. A direct toxicity could not be demonstrated in tests. Therefore, no PNEC was derived.

**Water**

## 8.2. Exposure controls

Information related to exposure control can be found in the respective exposure scenarios in the annex of the SDS

### Personal protective equipment:

**General protective and hygienic measures:** Listed in section 8 are the general personal protection measures corresponding to the standard of the chemical industry.

Specific information and detailed requirements are referred to in the exposure scenarios in the annex of the SDS. The usual precautionary measures should be adhered to in handling the chemicals.

**Breathing equipment:** Details can be found in the exposure scenarios in the annex of the SDS.

**Protection of hands:** Requirements according to EN 420. Check protective gloves prior to each use for their proper condition. Preventive skin protection by use of skin-protecting agents is recommended.

**Material of gloves:** Details on the material can be found in the exposure scenarios in the annex of the SDS.

**Penetration time of glove material:** Details can be found in the exposure scenarios in the annex of the SDS.

**Eye protection:** Tightly sealed safety glasses.

**Body protection:** Protective work clothing.

**Limitation and supervision of exposure into the environment:** Information related to exposure control can be found in the respective exposure scenarios in the annex of the SDS.

## 9) Physical/Chemical Properties

### 9.1 Information on basic physical and chemical properties

#### General Information

Property	Value used
Appearance: Form	Crystalline
Colour	Greenish
Smell	Odourless
Odour threshold	Not determined
pH-value (400 g/l) at 20 <sup>0</sup> C	3.6
Melting point/Melting range	Ca 64 <sup>0</sup> C
Boiling point/Boiling range	Not applicable
Flash point	Not applicable
Flammability (solid, gaseous)	Product is non flammable
Ignition temperature	Not applicable
Decomposition temperature	Not applicable
Self-flammability	Product is not selfigniting
Danger of explosion	Product is not explosive

Vapour pressure	Not applicable
Density	1 .89 g/cm <sup>3</sup>
Apparent density at 20 <sup>0</sup> C	0 8 - 0.9 kg/l
Vapour density	Not applicable
Evaporation rate	Not applicable
Solubility in/miscibility with water at 10 <sup>o</sup> c	365 g/l
Partition coefficient (n-octanol/water)	Not applicable
Viscosity dynamic at 20 <sup>0</sup> C	3 m Pas (solution containing 365 g/l)

\* Only properties that apply to the substance will be included in the table above

## 9.2. Other information

No further relevant information available

## 10) Stability/Reactivity

### 10.1. Reactivity

The substance is stable under normal use conditions.

### 10.2. Chemical stability

No decomposition if used and stored according to specifications. Loss of constitutional water on heating.

### 10.3. Possibility of hazardous reactions

Not relevant.

### 10.4. Conditions to avoid

No further data; See item 7.

### 10.5. Incompatible materials

No further data; See item 7.

### 10.6. Hazardous decomposition products

No dangerous decomposition products known.

## 11) Toxicological Info

### 11.1. Information on toxicological effects

**Acute toxicity:** Harmful if swallowed.

#### **LD/LC50 values that are relevant for classification:**

Oral LD50 1096 mg/kg (rat) (OECD 423)

Dermal LD50 >2000 mg/kg (rat) (OECD 402)

Inhalative LC50 no relevant data available.

**Primary irritant effect:**

**on the skin:** OECD 404: Causes skin irritation.

**on the eye:** OECD 405: Causes serious eye irritation.

**Respiratory or skin sensitization:** OECD 429 (LLNA-test): No sensitizing effects.

**Subacute to chronic toxicity:**

Oral NOAEL 274 mg/kg/d (rat) OECD 422)

Dermal NOAEL no relevant data available

Inhalative NOAEC no relevant data available

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

**Carcinogenicity:** Based on available data, the classification criteria are not met.

**Reproductive toxicity:** Based on available data, the classification criteria are not met.

**STOT-single exposure:** Based on available data, the classification criteria are not met.

**STOT-repeated exposure:** Based on available data, the classification criteria are not met.

**Aspiration hazard:** Based on available data, the classification criteria are not met.

**12) Ecological Information****12.1 Toxicity**

Data is experimentally not accessible. Under standard test conditions, the ferrous ion, Fe<sup>2+</sup>, is unstable and is oxidised to the ferric, Fe<sup>3+</sup> ion. Ferric iron salts have a high rate of conversion to insoluble ferric hydroxide, in consequence, Fe<sup>2+</sup> is to a great extent removed from the test system. Furthermore, iron plays an important role in biological processes, with iron homeostasis being under strict control. In conclusion, iron is not considered to be toxic to the aquatic environment under normal conditions.

**12.2 Persistence and degradability**

Not relevant for inorganic substances.

**12.3 Bioaccumulative potential**

Iron is a bioessential trace element for organisms and plays an important role in biological processes. The uptake of iron is strictly controlled by homeostatic process. In conclusion, bioaccumulation poses no concern.

**12.4 Mobility in soil**

The substance is immobile in soil.

**Additional ecological information:**

**AOX-indication:** <2 mg/kg

**12.5 Results of PBT and vPvB assessment**

The product is an inorganic substance and does not fulfil the criteria for PBZ and vPvB according to Annex XIII of REACH.

PBT: Not applicable.

vPvB: Not applicable.

**12.6 Other adverse effects:** No further relevant information available.

### 13) Disposal Considerations

#### 13.1 Waste treatment methods

**European waste catalogue:** Waste code number according to origin of waste.

This product is classified as hazardous waste and as such is covered by local waste legislation. P273 - Avoid release to the environment.

Do not discharge directly into watercourse or any other controlled watercourse. P501 - Waste disposal according to EC-regulations 2006/12/EC and 91/689/EEC in the corresponding versions, covering waste and dangerous waste.

#### 13.2 Uncleaned packagings:

Recommendation: Disposal according to official regulations

### 14) Transport Information

#### 14.1 UN-Number

**ADR/RID/ADN:** Not dangerous according to transport specifications.

**ADN, IMDG, IATA:** Not applicable.

#### 14.2 UN proper shipping name

**ADR/RID/ADN, ADN, IMDG, IATA:** Not applicable.

#### 14.3 Transport hazard class(es)

**ADR/RID/ADN, ADN, IMDG, IATA**

**Class:** Not applicable.

#### 14.4 Packaging Group

**ADR/RID/ADN, IMDG, IATA:** Not applicable.

**14.5 Environmental hazards:** Not an environmentally hazardous substance.

**14.6 Special precautions for user:** None

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

### 15) Regulatory Information

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

##### National regulations:

Observe in addition the national legislative regulations. UK - Requirements in relation to drinking water treatment chemicals are set out in Regulation 31 of the Water Supply (Water Quality) Regulations 2000, as amended (UK only). There are specification limits on quality in relation to Ferrous Sulphate under the Drinking Water Inspectorate in the UK (UK only).

##### Technical instructions (air):

**Water hazard class:** Water hazard class 1: slightly hazardous for water.

#### 15.2 Chemical Safety Assessment

##### Substances of very high concern (SVHC) according to REACH, Article 57

The product is not listed as SVHC, it does not contain any substances of very high concern.



## 16) Other Information

### Revision

This safety data sheet has been produced / revised in line with REACH Regulation 1907/2006 as amended by (EU) 2015/830. This revision is the current version dated 11<sup>th</sup> April 2018 and supersedes previous version dated 17<sup>th</sup> November 2016.

### Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

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

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox.4: Acute toxicity — Category 4

Skin Irrit. 2: Skin corrosion/irritation — Category 2

Eye Irrit. 2: Serious eye damage/eye irritation — Category 2

### Hazard and Precautionary Statements according to CLP Regulations (EC)1272/2008):

#### Hazard statements:

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

#### Precautionary statements:

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312: IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.

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.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

*DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.*

## **Ferrous Sulphate Heptahydrate (dried - FG20)**

### **Annex 1 — Exposure Scenarios**

The current document includes all relevant occupational and environmental exposure scenarios (ES) for the production and use of Ferrous Sulphate Heptahydrate (dried — FG20) as required under the REACH Regulation (Regulation (EC) No 1907/2006), Article 31. The exposure scenarios included in this annex are those related to the use of Ferrous Sulphate Heptahydrate (dried — FG20) for the customers in the supply chain. The intended Sector of use numbers (SU) indicate which exposure scenarios should be used in conjunction with what is agreed by the customers down the supply chain.

Sector of use (SU)	ES code	Identified use (IU)
3	ES 1	Water treatment: treatment of waste water and WWTTP sludge including pre-use steps ( <i>preparation of aqueous solutions</i> )
3	ES2	Water treatment: Use in the treatment of raw water in the supply of potable water and/or industrial process water including pre-use steps ( <i>preparation of aqueous solutions</i> )
3	ES3	H <sub>2</sub> S-Elimination in biogas and water treatment plants including pre-use steps ( <i>preparation of aqueous solutions</i> )
3	ES 4	Use in manufacture of cement ( <i>reduction of chromates</i> )
3	ES 5	Land remediation application
22	ES6	Use in agrochemicals