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## Section 01 Identification

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| <b>Product Identifier</b>                  | Ferrous Sulphate<br>Ferrous Sulphate Monohydrate<br>Ferrous Sulphate Heptahydrate   |
| <b>Other Means of Identification</b>       | Sulfuric acid, iron(2++) salt (1:1); Iron (II) sulfate; Green vitriol   |
| <b>Product Use and Restrictions on Use</b> | For commercial and industrial applications.   |
| <b>Initial Supplier Identifier</b>         | ClearTech Industries Inc.<br>1500 Quebec Avenue<br>Saskatoon, SK. Canada<br>S7K 1V7<br><br>Phone: 800.387.7503<br>Fax: 888.281.8109<br><a href="http://www.cleartech.ca">www.cleartech.ca</a> |
| <b>Prepared By</b>                         | ClearTech Industries Inc. technical writer  |
| <b>24-Hour Emergency Phone</b>             | 306.664.2522  |

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## Section 02 Hazard Identification

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### Physical Hazards

This product does not qualify for any physical hazard class under WHMIS 2015

### Health Hazards

|  |            |
|--|------------|
| <b>Acute toxicity - oral</b>               | Category 4 |
| <b>Skin corrosion / irritation</b>         | Category 2 |
| <b>Serious eye damage / eye irritation</b> | Category 2 |

### Signal Word

Warning

### Hazard Statements

- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.

### Pictograms



### Precautionary Statements

## Prevention

- P264 Wash affected body parts thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves, eye protection, face protection.

## Response

- P301 P312 P330 IF SWALLOWED: Rinse mouth. Call a POISON CENTER or doctor if you feel unwell.  
P303 P352 P332 IF ON SKIN (or hair): Wash with plenty of water. If skin irritation occurs: Get medical advice /  
P313 P362 P364 attention. Take off contaminated clothing and wash it before reuse.  
P305 P351 P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present  
P337 P313 and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

## Disposal

- P501 Dispose of contents / container in accordance with all federal, provincial and / or local regulations including the Canadian Environmental Protection Act.

## Hazards Not Otherwise Classified

Not available

## Supplemental Information

Not available

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## Section 03 Composition / Information on Ingredients

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### Hazardous Ingredients:

| Chemical name                       | Common name(s)                | CAS number | Concentration (w/w%) |
|-------------------------------------|-------------------------------|------------|----------------------|
| Sulfuric acid, iron(2++) salt (1:1) | Ferrus sulphate; iron sulfate | 7720-78-7  | 54.5-82.5%           |

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## Section 04 First-Aid Measures

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### Description of necessary first-aid measures

- Inhalation** Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.
- Ingestion** Rinse mouth. Get medical advice / attention if you feel unwell or are concerned. Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.
- Skin contact** Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Rinse skin with lukewarm, gently flowing water / shower for 15 to 20 minutes. Get medical advice / attention. Wash contaminated clothing before re-use, or discard.
- Eye contact** Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 15 to 20 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. If eye irritation persists: Get medical advice / attention.

### Most important symptoms and effects, both acute and delayed

- Inhalation** May cause respiratory irritation.
- Ingestion** Harmful if swallowed. May cause discomfort or nausea.
- Skin contact** Causes skin irritation.

**Eye contact** Causes serious eye irritation.  
**Further information** For further information see Section 11 Toxicological Information.

## Section 05 Fire Fighting Measures

**Suitable extinguishing media** Extinguish fire using extinguishing agents suitable for the surrounding fire.  
**Unsuitable extinguishing media** Water jets are not recommended in fires involving chemicals.  
**Specific hazards arising from the chemical** In the event of a fire oxides of sulphur may be released.  
**Special protective equipment for fire-fighters** Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing.

## Section 06 Accidental Release Measures

**Personal Precautions / Protective Equipment / Emergency Procedures** Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Stay upwind, ventilate area.  
**Environmental Precautions** Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.  
**Methods and Materials for Containment and Cleaning Up** Dry sweeping is not recommended. Pre-dampening the material or use of a vacuum is preferred. Shovel into clean, dry, labeled containers and cover. Flush area with water.

## Section 07 Handling and Storage

**Precautions for Safe Handling** Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure.  
Inspect containers for damage or leaks before handling. If the original label is damaged or missing replace with a workplace label. Have suitable emergency equipment for fires, spills and leaks readily available.  
Never return contaminated material to its original container.  
**Conditions for Safe Storage** Store in a cool, dry area, away from heat sources and incompatible materials. Always store in original labeled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it visible.  
**Incompatibilities** Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates.  
Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates.

## Section 08 Exposure Controls and Personal Protection

### Exposure limits

| Component                   | Regulation | Type of listing | Value               |
|-----------------------------|------------|-----------------|---------------------|
| Iron salts - soluble, as Fe | ACGIH      | TWA             | 1 mg/m <sup>3</sup> |
|                             | ACGIH      | STEL/Ceiling    | 2 mg/m <sup>3</sup> |

### Engineering controls

|                                 |   |
|---------------------------------|---|
| <b>Ventilation Requirements</b> | Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems. |
| <b>Other</b>                    | A soak hose and eyewash station or emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.  |

## Protective equipment

The following are recommendations only. It is the responsibility of the employer / user to conduct a hazard assessment of the process in which this product being used and determine the proper engineering controls and PPE for their process. Additional regulatory and safety information should be sought from local authorities and, if needed, a professional industrial hygienist.

|                                 |   |
|---------------------------------|---|
| <b>Eye and face protection</b>  | Where there is potential eye or face exposure, tightly fitting chemical goggles are recommended. Contact lenses are not recommended; they may contribute to severe eye injury.  |
| <b>Hand and body protection</b> | Disposable latex or nitrile gloves are recommended to prevent incidental contact. Butyl rubber, neoprene, or PVC skin protection is recommended for extended contact. Leather gloves are not recommended for chemical protection. Refer to manufacturer's specifications for breakthrough times and permeability information; note that breakthrough times and permeability vary with temperature, application and age of material. Continued use of contaminated safety gear or clothing is not recommended; wash before reuse or discard. |
| <b>Respiratory protection</b>   | In case of insufficient ventilation wear suitable respiratory equipment.  |
| <b>Thermal hazards</b>          | Not available   |

## Section 09 Physical and Chemical Properties

### Appearance

|                        |                     |
|------------------------|---------------------|
| <b>Physical state</b>  | Solid               |
| <b>Colour</b>          | Light blue to green |
| <b>Odour</b>           | Not available       |
| <b>Odour threshold</b> | Not available       |

### Property

|  |                                      |
|--|--------------------------------------|
| <b>pH</b>                                      | Not available                        |
| <b>Melting point / freezing point</b>          | Decomposes @ 300 °C                  |
| <b>Initial boiling point and boiling range</b> | Sublimes @ 300 °C                    |
| <b>Flash point</b>                             | Not applicable                       |
| <b>Evaporation rate</b>                        | Not available                        |
| <b>Flammability</b>                            | Non-flammable                        |
| <b>Upper flammable limit</b>                   | Not applicable                       |
| <b>Lower flammable limit</b>                   | Not applicable                       |
| <b>Vapour pressure</b>                         | Not available                        |
| <b>Vapour density</b>                          | Not available                        |
| <b>Relative density</b>                        | ~3.0 g/cm <sup>3</sup> (monohydrate) |
| <b>Solubility</b>                              | 295 g/L @ 25 °C (monohydrate)        |

|   |  |
|---|--|
| <b>Partition coefficient: n-octanol/water</b> | Not available  |
| <b>Auto-ignition temperature</b>              | Not applicable   |
| <b>Decomposition temperature</b>              | Not available  |
| <b>Viscosity</b>                              | Not applicable   |
| <b>Specific gravity</b>                       | Not applicable   |
| <b>Particle characteristics</b>               | Particle size: Not available<br>Particle shape: Crystalline powder |
| <b>Formula</b>                                | FeSO <sub>4</sub> (anhydrous)                                      |
| <b>Molecular weight</b>                       | 151.91 g/mol (anhydrous)   |

## Section 10 Stability and Reactivity

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|---|--|
| <b>Reactivity</b>                         | Reacts violently with bases.   |
| <b>Stability</b>                          | This product is stable if stored according to the recommendations in Section 07.   |
| <b>Possibility of hazardous reactions</b> | Hazardous polymerization is not known to occur.  |
| <b>Conditions to avoid</b>                | Avoid contact with incompatible materials. Avoid high temperatures. Avoid contact with incompatible materials. Keep container tightly sealed. Do not use in areas without adequate ventilation.                                  |
| <b>Incompatible materials</b>             | Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates.<br>Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates. |
| <b>Hazardous decomposition products</b>   | Thermal decomposition may produce oxides of sulphur.   |

## Section 11 Toxicological Information

### Acute Toxicity (LD50 / LC50 values)

| Component          | Route | Species | Value        | Exposure time |
|--------------------|-------|---------|--------------|---------------|
| Iron (II) chloride | Oral  | Rat     | 500 mg/kg bw |               |

### Toxic Health Effect Summary

|                                 |   |
|---------------------------------|---|
| <b>Chemical characteristics</b> | Not available   |
| <b>Skin</b>                     | Causes skin irritation.   |
| <b>Ingestion</b>                | Harmful if swallowed. May cause discomfort or nausea.   |
| <b>Inhalation</b>               | May cause respiratory irritation.   |
| <b>Eye contact</b>              | Causes serious eye irritation.  |
| <b>Sensitization</b>            | This product and its components at their listed concentration have no known sensitizing effects.        |
| <b>Mutagenicity</b>             | This product and its components at their listed concentration have no known mutagenic effects.          |
| <b>Carcinogenicity</b>          | This product and its components at their listed concentration have no known carcinogenic effects.       |
| <b>Reproductive toxicity</b>    | This product and its components at their listed concentration have no known reproductive effects.       |
| <b>Specific organ toxicity</b>  | This product and its components at their listed concentration have no known effects on specific organs. |

**Aspiration hazard** Not available

**Synergistic materials** Not available

## Section 12 Ecological Information

### Ecotoxicity

| Component                     | Type               | Species       | Value       | Exposure Time |
|-------------------------------|--------------------|---------------|-------------|---------------|
| Ferrous sulphate heptahydrate | LC50               | Rainbow trout | 16.6 mg/L   | 96 hours      |
| Ferrous sulphate              | EC50 (pH adjusted) | Daphnia magna | 5.25 mg/L   | 24 hours      |
|                               | LC50               | Shrimp        | 100-300 ppm | 48 hours      |

**Biodegradability** The domestic substance list categorizes ferrous sulphate as persistent.

**Bioaccumulation** The domestic substance list categorizes ferrous sulphate as non-bioaccumulative.

**Mobility** This product is water soluble, but is expected to adsorb to soil and is not expected to contaminate ground water.

**Other adverse effects** Not available

## Section 13 Disposal Considerations

**Waste From Residues / Unused Products** Dispose in accordance with all federal, provincial, and local regulations including the Canadian Environmental Protection Act.

**Contaminated Packaging** Do not remove label, follow label warnings even after the container is empty. Empty containers should be recycled or disposed of at an approved waste handling facility.

## Section 14 Transport Information

**UN number** This product does not meet the definition of dangerous goods per Part 2 of Transport of Dangerous Goods Regulations

**UN proper shipping name and description** Not available

**Transport hazard class(es)** Not available

**Packing group** Not available

**Excepted quantities** Not available

**Environmental hazards** Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.

**Special precautions** No special precautions

**Transport in bulk** ERAP index: Not available

**Additional information** MARPOL 73/78 and IBC Code:  
This product is not listed in Chapter 17 of the IBC Code.  
Secure containers (full or empty) during shipment and ensure all caps, valves, or closures are secured in the closed position.

**TDG PRODUCT CLASSIFICATION:** This product has been classified on the preparation date specified at section 16 of this SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and published test data regarding the classification of this product are listed in the references at section 16 of this SDS.

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## Section 15 Regulatory Information.

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**NOTE: THE PRODUCT LISTED ON THIS SAFETY DATA SHEET HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN HAZARDOUS PRODUCTS REGULATIONS. THIS SAFETY DATA SHEET CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.**

All components of this product appear on the domestic substance list.

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## Section 16 Other Information

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**Date of latest revision: March 16, 2023**

**Note:** The responsibility to provide a safe workplace remains with the buyer / user. The buyer / user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the buyer / user to comply with all applicable laws and regulations regarding handling, using, reselling and shipping this product.

**Attention: Receiver of the chemical goods / SDS coordinator**

As part of our commitment to the RDC Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

**References:**

- 1) *NIOSH Pocket Guide to Chemical Hazards*; U.S. Department of Health and Human Services, <https://www.cdc.gov/niosh/npg/default.html>
- 2) *WorkSafe BC E-Limit*; Workers' Compensation Board of British Columbia, <https://elimit.online.worksafebc.com/>
- 3) *ECHA - Registered Substance Dossier*; European Chemicals Agency, <https://echa.europa.eu/registration-dossier/-/registered-dossier/15513>
- 4) *Transportation of Dangerous Goods Regulations*; Transport Canada, <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2001-286/index.html>
- 5) Globally Harmonized System of Classification and Labeling of Chemicals (GHS) *Seventh revised edition*
- 6) International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code) 2007 Edition
- 7) The ACS Style Guide