

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Ferrous sulphate, monohydrate</b>
<b>Other Names</b>	Iron sulfate, monohydrate
<b>Uses</b>	General chemical.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	FeSO <sub>4</sub> .H <sub>2</sub> O
<b>Chemical Name</b>	Sulfuric acid, iron(2+) salt (1:1), monohydrate
<b>Product Description</b>	No Data Available

### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

### Emergency Contact Details

*For emergencies only; DO NOT contact these companies for general product advice.*

Organisation	Location	Telephone
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766

### 2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)** Not Scheduled

### Globally Harmonised System

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
<b>Hazard Categories</b>	Acute Toxicity (Oral) - Category 4 Skin Corrosion/Irritation - Category 2 Serious Eye Damage/Irritation - Category 2A Acute Hazard To The Aquatic Environment - Category 2



Pictograms



Signal Word

Warning

Hazard Statements

**H302** Harmful if swallowed.  
**H315** Causes skin irritation.  
**H319** Causes serious eye irritation.  
**H401** Toxic to aquatic life.

Precautionary Statements

Prevention	<b>P280</b>	Wear protective gloves/eye protection/face protection.	
	<b>P273</b>	Avoid release to the environment.	
	<b>P270</b>	Do not eat, drink or smoke when using this product.	
	Response	<b>P302 + P352</b>	IF ON SKIN: Wash with plenty of soap and water.
		<b>P337 + P313</b>	If eye irritation persists: Get medical advice/attention.
		<b>P391</b>	Collect spillage.
	Disposal	<b>P301 + P312</b>	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
		<b>P330</b>	Rinse mouth.
		<b>P332 + P313</b>	If skin irritation occurs: Get medical advice/attention.
		<b>P362</b>	Take off contaminated clothing and wash before reuse.
<b>P305 + P351 + P338</b>		IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards	<b>6.1D</b>	Substances that are acutely toxic - Harmful
	<b>6.3A</b>	Substances that are irritating to the skin
	<b>6.4A</b>	Substances that are irritating to the eye
Environmental Hazards	<b>9.1D</b>	Substances that are slightly harmful to the aquatic environment or are otherwise designed for biocidal action

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ferrous sulphate, monohydrate	FeSO4.H2O	17375-41-6	90 - 100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

IF SWALLOWED: Rinse mouth, then drink 200 - 300 ml water. Do not induce vomiting. Call a Poison Centre or doctor/physician if you feel unwell. Never give anything by mouth to an unconscious person.

Eye

IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15



minutes. If eye irritation persists, get medical advice/attention.

<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Treat symptomatically and supportively. Symptoms may be delayed.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

**5. FIRE FIGHTING MEASURES**

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
<b>Flammability Conditions</b>	Non-combustible; Material does not burn.
<b>Extinguishing Media</b>	If material is involved in a fire, use extinguishing media appropriate to surrounding conditions.
<b>Fire and Explosion Hazard</b>	Decomposes on heating, emitting toxic fumes.
<b>Hazardous Products of Combustion</b>	Fire or heat will produce irritating and/or toxic gases, including Sulphur oxides.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
<b>Personal Protective Equipment</b>	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

**6. ACCIDENTAL RELEASE MEASURES**

<b>General Response Procedure</b>	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Collect material (sweep or vacuum up) and place it into suitable, labelled containers for later disposal (see SECTION 13); if appropriate, moisten first to prevent dusting.
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
<b>Decontamination</b>	Wash area down with excess water.
<b>Environmental Precautionary Measures</b>	Prevent entry into drains and waterways.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
<b>Personal Precautionary Measures</b>	Use personal protective equipment as required (see SECTION 8).

**7. HANDLING AND STORAGE**

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required; In case of inadequate ventilation, wear respiratory protection (see SECTION 8). Keep away from heat and sources of ignition - No smoking. Take precautionary measures against static discharge.
<b>Storage</b>	Store in a cool, dry and well-ventilated place. Keep container tightly closed and protect from physical damage. Protect from moisture/humidity. Keep away from heat and sources of ignition. Keep away from incompatible



materials (see SECTION 10).

**Container**

Keep in the original container.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**General**

No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards:  
 - Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m<sup>3</sup> (measured as inhalable dust).  
 - New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m<sup>3</sup> (total); TWA = 3 mg/m<sup>3</sup> (respirable).

**Exposure Limits**

No Data Available

**Biological Limits**

No information available.

**Engineering Measures**

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

**Personal Protection Equipment**

- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or an inhalation risk exists. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & AS/NZS 1716).  
 - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Chemical goggles.  
 - Hand protection: Wear protective gloves. Recommended: Impervious, chemical-resistant gloves.  
 - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls, safety shoes.

**Special Hazards Precautions**

No information available.

**Work Hygienic Practices**

Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash before storage or reuse.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State**

Solid

**Appearance**

Powder or granules

**Odour**

Odourless

**Colour**

Greyish - white

**pH**

3.0 10 % solution

**Vapour Pressure**

No Data Available

**Relative Vapour Density**

No Data Available

**Boiling Point**

Decomposes

**Melting Point**

No Data Available

**Freezing Point**

No Data Available

**Solubility**

Soluble in water

**Specific Gravity**

2.97

**Flash Point**

No Data Available

**Auto Ignition Temp**

No Data Available

**Evaporation Rate**

No Data Available

**Bulk Density**

No Data Available

**Corrosion Rate**

No Data Available

**Decomposition Temperature**

>300 °C

**Density**

No Data Available

**Specific Heat**

No Data Available

**Molecular Weight**

No Data Available

**Net Propellant Weight**

No Data Available

**Octanol Water Coefficient**

No Data Available

**Particle Size**

No Data Available



<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	Hygroscopic.
<b>Potential for Dust Explosion</b>	The product may present a dust explosion hazard.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible; Material does not burn.
<b>Reactions That Release Gases or Vapours</b>	Decomposes on heating, emitting toxic fumes, including Sulphur oxides.
<b>Release of Invisible Flammable Vapours and Gases</b>	No information available.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Reaction with alkalis results in production of iron hydrates and salts. Gradual oxidation occurs in wet air, resulting in production of ferric sulfate, Fe(OH)SO <sub>4</sub> .
<b>Chemical Stability</b>	Material is stable under normal conditions.
<b>Conditions to Avoid</b>	Avoid dust formation. Protect from moisture/humidity. Keep away from heat and sources of ignition.
<b>Materials to Avoid</b>	Incompatible/reactive with strong oxidising agents, strong alkalis, fine metal powders.
<b>Hazardous Decomposition Products</b>	Decomposes on heating, emitting toxic fumes, including Sulphur oxides.
<b>Hazardous Polymerisation</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<ul style="list-style-type: none"> <li>- Acute toxicity: Harmful if swallowed; May cause nausea, vomiting, diarrhoea, and gastrointestinal irritation. Symptoms may be delayed.</li> <li>- Skin corrosion/irritation: Causes skin irritation.</li> <li>- Eye damage/irritation: Causes serious eye irritation.</li> <li>- Respiratory/skin sensitisation: No information available.</li> <li>- Germ cell mutagenicity: No information available.</li> <li>- Carcinogenicity: No information available.</li> <li>- Reproductive toxicity: No information available.</li> <li>- STOT (single exposure): Dust may cause respiratory irritation, cough and shortness of breath.</li> <li>- STOT (repeated exposure): Repeated or prolonged exposure may have adverse effects on the liver.</li> <li>- Aspiration toxicity: No information available.</li> </ul>
<b>Acute</b>	
<b>Ingestion</b>	Acute toxicity (Oral): COMPONENT: Ferrous sulphate (CAS No. 7720-78-7): - LD50, Rat: 319 mg/kg
<b>Carcinogen Category</b>	None



**12. ECOLOGICAL INFORMATION**

<b>Ecotoxicity</b>	Aquatic toxicity: - LD50, Fish (various species): 0.41 - >28 mg/l (96 h). - EC50, Daphnia magna: 1 - 10 mg/l (48 h).
<b>Persistence/Degradability</b>	Not applicable for an inorganic compound.
<b>Mobility</b>	No information available.
<b>Environmental Fate</b>	Toxic to aquatic life - Avoid release to the environment; Prevent entry into drains and waterways.
<b>Bioaccumulation Potential</b>	Bioconcentration of iron to species is relatively low. Iron is an essential element for most living species and may be actively regulated in organisms.
<b>Environmental Impact</b>	No Data Available

**13. DISPOSAL CONSIDERATIONS**

<b>General Information</b>	Dispose of contents/container in accordance with local/regional/national regulations.
<b>Special Precautions for Land Fill</b>	Contaminated packaging: Empty and thoroughly clean all residues from containers before reuse or disposal.

**14. TRANSPORT INFORMATION****Land Transport (New Zealand)**

NZS5433

<b>Proper Shipping Name</b>	Ferrous sulphate, monohydrate
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

**Sea Transport**

IMDG Code

<b>Proper Shipping Name</b>	Ferrous sulphate, monohydrate
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available
<b>EMS</b>	No Data Available
<b>Marine Pollutant</b>	No

**Air Transport**

IATA DGR

<b>Proper Shipping Name</b>	Ferrous sulphate, monohydrate
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<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	No Data Available

## 15. REGULATORY INFORMATION

<b>General Information</b>	No Data Available
<b>Poisons Schedule (Aust)</b>	Not Scheduled

### Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	HSR002503
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### National/Regional Inventories

<b>Australia (AICS)</b>	Listed
<b>Canada (DSL)</b>	Not Determined
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Not Determined
<b>Europe (EINECS)</b>	605-688-1
<b>Europe (REACH)</b>	Not Determined
<b>Japan (ENCS/METI)</b>	Not Determined
<b>Korea (KECI)</b>	Not Determined
<b>Malaysia (EHS Register)</b>	Not Determined
<b>New Zealand (NZIoC)</b>	Listed
<b>Philippines (PICCS)</b>	Not Determined
<b>Switzerland (Giftliste 1)</b>	Not Determined
<b>Switzerland (Inventory of Notified Substances)</b>	Not Determined
<b>Taiwan (NCSR)</b>	Not Determined
<b>USA (TSCA)</b>	Not Determined

## 16. OTHER INFORMATION

<b>Related Product Codes</b>	FESULP0100, FESULP0200, FESULP0300, FESULP0400, FESULP0401, FESULP0402, FESULP0500, FESULP0501, FESULP0900, FESULP1000, FESULP1001, FESULP1002, FESULP1003, FESULP1004,
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FESULP1005, FESULP1006, FESULP1007, FESULP1008, FESULP1009, FESULP1010, FESULP1011, FESULP1012, FESULP1013, FESULP1014, FESULP1015, FESULP1016, FESULP1017, FESULP1018, FESULP1019, FESULP1020, FESULP1021, FESULP1022, FESULP1100, FESULP1200, FESULP2200, FESULP2300, FESULP2600, FESULP2700, FESULP2701, FESULP2710, FESULP2800, FESULP2801, FESULP2810, FESULP3000, FESULP3001, FESULP3002, FESULP3003, FESULP3004, FESULP3100, FESULP3101, FESULP3102, FESULP3103, FESULP3104, FESULP3200, FESULP3201, FESULP3300, FESULP3301, FESULP3400, FESULP3600, FESULP3601, FESULP3602, FESULP3603, FESULP3604, FESULP3605, FESULP3700, FESULP3701, FESULP3702, FESULP3703, FESULP3704, FESULP3705, FESULP3706, FESULP3710, FESULP3800, FESULP3801, FESULP4000, FESULP4001, FESULP4200, FESULP4300, FESULP4301, FESULP4400, FESULP4700, FESULP5600, FESULP5601, FESULP5602, FESULP5700, FESULP5701, FESULP5800, FESULP5801, FESULP5802, FESULP5900, FESULP6300, FESULP6400, FESULP6401, FESULP6410, FESULP6420, FESULP6430, FESULP6700, FESULP6705, FESULP6710, FESULP6711, FESULP6715, FESULP6800, FESULP6801, FESULP6802, FESULP6810, FESULP6825, FESULP6850, FESULP6900, FESULP7100, FESULP7200, FESULP7300, FESULP7600, FESULP7601, FESULP7602, FESULP7700, FESULP7800, FESULP8500, FESULP8501, FESULP9200

**Revision**

3

**Revision Date**

05 Sep 2016

**Reason for Issue**

SDS updated

**Key/Legend**

< Less Than  
 > Greater Than  
**AICS** Australian Inventory of Chemical Substances  
**atm** Atmosphere  
**CAS** Chemical Abstracts Service (Registry Number)  
**cm<sup>2</sup>** Square Centimetres  
**CO<sub>2</sub>** Carbon Dioxide  
**COD** Chemical Oxygen Demand  
**deg C (°C)** Degrees Celcius  
**EPA (New Zealand)** Environmental Protection Authority of New Zealand  
**deg F (°F)** Degrees Farenheit  
**g** Grams  
**g/cm<sup>3</sup>** Grams per Cubic Centimetre  
**g/l** Grams per Litre  
**HSNO** Hazardous Substance and New Organism  
**IDLH** Immediately Dangerous to Life and Health  
**immiscible** Liquids are insoluable in each other.  
**inHg** Inch of Mercury  
**inH<sub>2</sub>O** Inch of Water  
**K** Kelvin  
**kg** Kilogram  
**kg/m<sup>3</sup>** Kilograms per Cubic Metre  
**lb** Pound  
**LC<sub>50</sub>** LC stands for lethal concentration. LC<sub>50</sub> is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.  
**LD<sub>50</sub>** LD stands for Lethal Dose. LD<sub>50</sub> is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.  
**ltr** or **L** Litre  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc** or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** Millimetres of Water  
**mPa.s** Millipascals per Second  
**N/A** Not Applicable  
**NIOSH** National Institute for Occupational Safety and Health  
**NOHSC** National Occupational Health and Safety Commission  
**OECD** Organisation for Economic Co-operation and Development  
**Oz** Ounce  
**PEL** Permissible Exposure Limit  
**Pa** Pascal  
**ppb** Parts per Billion  
**ppm** Parts per Million  
**ppm/2h** Parts per Million per 2 Hours  
**ppm/6h** Parts per Million per 6 Hours  
**psi** Pounds per Square Inch  
**R** Rankine  
**RCP** Reciprocal Calculation Procedure  
**STEL** Short Term Exposure Limit  
**TLV** Threshold Limit Value





**tne** Tonne  
**TWA** Time Weighted Average  
**ug/24H** Micrograms per 24 Hours  
**UN** United Nations  
**wt** Weight

