

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** FERROX SOLUTION

**Recommended Use of the Chemical and Restrictions on Use** Industrial chemical.

**Supplier:** Ixom Operations Pty Ltd  
**ABN:** 51 600 546 512  
**Street Address:** Level 8, 1 Nicholson Street  
East Melbourne Victoria 3002  
Australia

**Telephone Number:** +61 3 9906 3000  
**Emergency Telephone:** 1 800 033 111 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

## 2. HAZARDS IDENTIFICATION

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

### Classification of the chemical:

Acute Oral Toxicity - Category 4  
Skin Irritation - Category 2  
Eye Damage - Category 1

**SIGNAL WORD:** DANGER



### Hazard Statement(s):

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.

### Precautionary Statement(s):

#### Prevention:

P264 Wash hands thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves / protective clothing / eye protection / face protection.

# Safety Data Sheet

**Response:**

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

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of soap and water.

P321 Specific treatment (see First Aid Measures on Safety Data Sheet).

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

P362 Take off contaminated clothing and wash before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.

**Storage:**

No storage statements.

**Disposal:**

P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

**Poisons Schedule (SUSMP):** None allocated.

## 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Ferric nitrate	10421-48-4	ca. 50% (includes calcium nitrate)	H272 H315 H319
Calcium nitrate	10124-37-5	ca. 50% (includes ferric nitrate)	H272 H302 H319
Water	7732-18-5	ca. 50%	-

## 4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

**Inhalation:**

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

**Skin Contact:**

If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water and soap. If swelling, redness, blistering or irritation occurs seek medical assistance. Nitrates can be absorbed through cut, burnt or broken skin. Launder contaminated clothing before reuse.

**Eye Contact:**

Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport promptly to hospital or medical centre.

**Ingestion:**

Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

**Indication of immediate medical attention and special treatment needed:**

Treat symptomatically. Can cause corneal burns. May cause methemoglobinemia. Treat as for exposure to nitrates. Clinical findings: The smooth muscle relaxant effect of nitrate salts may lead to headache, dizziness and marked hypotension.

Cyanosis is clinically detectable when approximately 15% of the haemoglobin has been converted to methaemoglobin (ie. ferric iron).

Symptoms such as headache, dizziness, weakness and dyspnoea occur when methaemoglobin concentrations are 30% to 40%; at levels of about 60%, stupor, convulsions, coma and respiratory paralysis occur and the blood is a chocolate brown colour. At higher levels death may result. Spectrophotometric analysis can determine the presence and concentration of methaemoglobin in blood.

Treatment:

1. Give 100% oxygen.
  2. In cases of (a) ingestion: use gastric lavage, (b) contamination of skin (unburnt or burnt): continue washing to remove salts.
  3. Observe blood pressure and treat hypotension if necessary.
  4. When methaemoglobin concentrations exceed 40% or when symptoms are present, give methylene blue 1 to 2 mg/kg body weight in a 1% solution by slow intravenous injection. If cyanosis has not resolved within one hour a second dose of 2 mg/kg body weight may be given. The total dose should not exceed 7 mg/kg body weight as unwanted effects such as dyspnoea, chest pain, vomiting, diarrhoea, mental confusion and cyanosis may occur. Without treatment methaemoglobin levels of 20-30% revert to normal within 3 days.
  5. Bed rest is required for methaemoglobin levels in excess of 40%.
  6. Continue to monitor and give oxygen for at least two hours after treatment with methylene blue.
  7. Consider transfer to centre where haemoperfusion can be performed to remove the nitrates from the blood if the condition of the patient is unstable.
  8. Following inhalation of oxides of nitrogen the patient should be observed in hospital for 24 hours for delayed onset of pulmonary oedema.
- Further observation for 2-3 weeks may be required to detect the onset of the inflammatory changes of bronchiolitis fibrosa obliterans.

## 5. FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:**

Not combustible, however, if material is involved in a fire use: Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

**Specific hazards arising from the chemical:**

Non-combustible material.

**Special protective equipment and precautions for fire-fighters:**

Decomposes on heating emitting toxic fumes, including those of oxides of nitrogen. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.

## 6. ACCIDENTAL RELEASE MEASURES

**Emergency procedures/Environmental precautions:**

Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

**Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:**

Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal. Wash area down with excess water.

## 7. HANDLING AND STORAGE

### Precautions for safe handling:

Avoid skin and eye contact and breathing in vapour, mists and aerosols. When using do not eat, drink or smoke. Wash hands thoroughly after handling.

### Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well ventilated place. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for leaks.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters:** No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for constituent(s):

Iron salts, soluble (as Fe): 8hr TWA = 1 mg/m<sup>3</sup>

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

### Appropriate engineering controls:

Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

### Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, CHEMICAL GOGGLES, GLOVES.



# Safety Data Sheet



Wear overalls, chemical goggles and impervious gloves. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. If determined by a risk assessment an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Clear to Straw-coloured
<b>Odour:</b>	Negligible
<b>Solubility:</b>	Miscible in water.
<b>Specific Gravity:</b>	ca. 1.45-1.55
<b>Flash Point (°C):</b>	Not applicable
<b>Flammability Limits (%):</b>	Not applicable
<b>Autoignition Temperature (°C):</b>	Not available
<b>Boiling Point/Range (°C):</b>	Not available
<b>pH:</b>	ca. 4

## 10. STABILITY AND REACTIVITY

<b>Reactivity:</b>	No information available.
<b>Chemical stability:</b>	Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
<b>Possibility of hazardous reactions:</b>	Hazardous polymerisation will not occur.
<b>Conditions to avoid:</b>	Avoid exposure to heat, sources of ignition, and open flame.
<b>Incompatible materials:</b>	Incompatible with ammonia . Incompatible with reducing agents.
<b>Hazardous decomposition products:</b>	Oxides of nitrogen. Oxides of iron. Oxides of calcium.

## 11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

<b>Ingestion:</b>	Swallowing may result in irritation of the gastrointestinal tract. Swallowing large amounts may result in headaches, dizziness and a reduction in blood pressure (hypotension).
<b>Eye contact:</b>	A severe eye irritant. Contamination of eyes can result in permanent injury.
<b>Skin contact:</b>	Contact with skin will result in irritation.
<b>Inhalation:</b>	Breathing in mists or aerosols may produce respiratory irritation.
<b>Acute toxicity:</b>	No LD50 data available for the product. For the constituent Calcium nitrate : Oral LD50 (rat): 302 mg/kg.

# Safety Data Sheet



**Respiratory or skin sensitisation:** No information available.

**Chronic effects:** No information available for the product.

**Mutagenicity:** No information available.

**Carcinogenicity:** No information available.

**Reproductive toxicity:** No information available.

**Specific Target Organ Toxicity (STOT) - single exposure:** No information available.

**Specific Target Organ Toxicity (STOT) - repeated exposure:** No information available.

**Aspiration hazard:** No information available.

NITRATES: Absorption of nitrates by ingestion, inhalation or through burnt or broken skin may cause dilation of the blood vessels by direct smooth muscle relaxation with a subsequent lowering of blood pressure and may also cause breathing difficulties, blueness of the skin (cyanosis) and methaemoglobinaemia.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Avoid contaminating waterways.

**Persistence/degradability:** No information available.

**Bioaccumulative potential:** No information available.

**Mobility in soil:** No information available.

## 13. DISPOSAL CONSIDERATIONS

### **Disposal methods:**

Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

## 14. TRANSPORT INFORMATION

### **Road and Rail Transport**

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by Road and Rail; NON-DANGEROUS GOODS.

### **Marine Transport**

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; NON-DANGEROUS GOODS.

### **Air Transport**

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; NON-DANGEROUS GOODS.

## 15. REGULATORY INFORMATION

### **Classification:**

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

# Safety Data Sheet

**Classification of the chemical:**

Acute Oral Toxicity - Category 4

Skin Irritation - Category 2

Eye Damage - Category 1

**Hazard Statement(s):**

H302 Harmful if swallowed.

H315 Causes skin irritation.

H318 Causes serious eye damage.

**Poisons Schedule (SUSMP):** None allocated.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

## 16. OTHER INFORMATION

'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 2019.

This safety data sheet has been prepared by Ixom Operations Pty Ltd (Toxicology & SDS Services).

**Reason(s) for Issue:**

5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.