

# Ferriin Oxidation-Reduction Indicator

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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Version: 1.1

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Mixture  
 Product name : Ferriin Oxidation-Reduction Indicator  
 Product code : LC14450  
 Other means of identification : o-Phenanthroline-Ferrous Sulfate Complex

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

Use of the substance/mixture : For laboratory and manufacturing use only.

#### 1.3. Details of the supplier of the safety data sheet

LabChem Inc  
 Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court  
 Zelienople, PA 16063 - USA  
 T 412-826-5230 - F 724-473-0647  
[info@labchem.com](mailto:info@labchem.com) - [www.labchem.com](http://www.labchem.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Not classified

#### 2.2. Label elements

##### GHS-US labelling

No labelling applicable

#### 2.3. Other hazards

Other hazards not contributing to the classification : None.

#### 2.4. Unknown acute toxicity (GHS-US)

No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

Not applicable

Full text of H-phrases: see section 16

#### 3.2. Mixture

| Name                             | Product identifier | %     | GHS-US classification   |
|----------------------------------|--------------------|-------|---|
| Water                            | (CAS No) 7732-18-5 | 97.81 | Not classified  |
| 1,10-Phenanthroline, Monohydrate | (CAS No) 5144-89-8 | 1.49  | Acute Tox. 3 (Oral), H301<br>Aquatic Acute 1, H400<br>Aquatic Chronic 1, H410 |
| Ferrous Sulfate, Heptahydrate    | (CAS No) 7782-63-0 | 0.7   | Acute Tox. 4 (Oral), H302<br>Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319       |

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).  
 First-aid measures after inhalation : Assure fresh air breathing. Allow the victim to rest.  
 First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

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- First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

- Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

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

Obtain medical assistance.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.

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

No additional information available

### 5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Protective equipment : Safety glasses. Gloves.
- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

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

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour.
- Hygiene measures : Wash contaminated clothing before reuse.

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

- Storage conditions : Keep container closed when not in use.
- Incompatible products : Strong bases. Strong acids. Strong oxidizers.
- Incompatible materials : Direct sunlight.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Ferrous Sulfate, Heptahydrate (7782-63-0)

|           |                                |                     |
|-----------|--------------------------------|---------------------|
| USA ACGIH | ACGIH TWA (mg/m <sup>3</sup> ) | 1 mg/m <sup>3</sup> |
|-----------|--------------------------------|---------------------|

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### 8.2. Exposure controls

|                                  |  |
|----------------------------------|--|
| Appropriate engineering controls | : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation. |
| Personal protective equipment    | : Avoid all unnecessary exposure.  |
| Hand protection                  | : Wear protective gloves.  |
| Eye protection                   | : Chemical goggles or safety glasses.  |
| Respiratory protection           | : Wear appropriate mask.   |
| Other information                | : Do not eat, drink or smoke during use.   |

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|  |                     |
|--|---------------------|
| Physical state                             | : Liquid            |
| Colour                                     | : red.              |
| Odour                                      | : Odourless.        |
| Odour threshold                            | : No data available |
| pH   | : No data available |
| Relative evaporation rate (butylacetate=1) | : No data available |
| Melting point                              | : No data available |
| Freezing point                             | : No data available |
| Boiling point                              | : No data available |
| Flash point                                | : No data available |
| Self ignition temperature                  | : No data available |
| Decomposition temperature                  | : No data available |
| Flammability (solid, gas)                  | : No data available |
| Vapour pressure                            | : No data available |
| Relative vapour density at 20 °C           | : No data available |
| Relative density                           | : No data available |
| Density                                    | : 1 g/ml            |
| Solubility                                 | : Soluble in water. |
| Log Pow                                    | : No data available |
| Log Kow                                    | : No data available |
| Viscosity, kinematic                       | : No data available |
| Viscosity, dynamic                         | : No data available |
| Explosive properties                       | : Not applicable.   |
| Oxidising properties                       | : None.             |
| Explosive limits                           | : No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

None.

### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

### 10.6. Hazardous decomposition products

Nitrogen oxides. Carbon monoxide. Carbon dioxide. Sulfur compounds.

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### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity : Not classified

| Ferroin Oxidation-Reduction Indicator |                |
|---------------------------------------|----------------|
| ATE (oral)                            | 8541.000 mg/kg |

| Ferrous Sulfate, Heptahydrate (7782-63-0) |                          |
|---|--------------------------|
| LD50 oral rat                             | 1520 mg/kg               |
| ATE (oral)                                | 500.000 mg/kg bodyweight |

| 1,10-Phenanthroline, Monohydrate (5144-89-8) |                 |
|--|-----------------|
| LD50 oral rat                                | 132 mg/kg (Rat) |

| Water (7732-18-5) |               |
|-------------------|---------------|
| LD50 oral rat     | ≥ 90000 mg/kg |

Skin corrosion/irritation : Not classified  
Serious eye damage/irritation : Not classified  
Respiratory or skin sensitisation : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

#### 12.1. Toxicity

| Ferroin Oxidation-Reduction Indicator |           |
|---------------------------------------|-----------|
| EC50 Daphnia 1                        | 2771 mg/l |

| Ferrous Sulfate, Heptahydrate (7782-63-0) |          |
|---|----------|
| EC50 Daphnia 1                            | 152 mg/l |

#### 12.2. Persistence and degradability

| Ferroin Oxidation-Reduction Indicator |                  |
|---------------------------------------|------------------|
| Persistence and degradability         | Not established. |

| Water (7732-18-5)             |                  |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |

#### 12.3. Bioaccumulative potential

| Ferroin Oxidation-Reduction Indicator |                  |
|---------------------------------------|------------------|
| Bioaccumulative potential             | Not established. |

| 1,10-Phenanthroline, Monohydrate (5144-89-8) |                      |
|--|----------------------|
| Bioaccumulative potential                    | Not bioaccumulative. |

| Water (7732-18-5)         |                  |
|---------------------------|------------------|
| Bioaccumulative potential | Not established. |

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Other information : Avoid release to the environment.

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

In accordance with DOT

No dangerous good in sense of transport regulations

#### Additional information

Other information : No supplementary information available.

#### ADR

Transport document description :

#### Transport by sea

No additional information available

#### Air transport

No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Ferrous Sulfate, Heptahydrate (7782-63-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

|  |         |
|--|---------|
| RQ (Reportable quantity, section 304 of EPA's List of Lists) : | 1000 lb |
|--|---------|

##### 1,10-Phenanthroline, Monohydrate (5144-89-8)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

##### Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### CANADA

##### Ferriin Oxidation-Reduction Indicator

|                      |   |
|----------------------|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|---|

##### Ferrous Sulfate, Heptahydrate (7782-63-0)

Not listed on the Canadian DSL (Domestic Substances List) inventory.

|                      |  |
|----------------------|--|
| WHMIS Classification | Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects<br>Class D Division 2 Subdivision B - Toxic material causing other toxic effects |
|----------------------|--|

##### 1,10-Phenanthroline, Monohydrate (5144-89-8)

|                      |   |
|----------------------|---|
| WHMIS Classification | Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects |
|----------------------|---|

##### Water (7732-18-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

|                      |   |
|----------------------|---|
| WHMIS Classification | Uncontrolled product according to WHMIS classification criteria |
|----------------------|---|

#### EU-Regulations

No additional information available

#### Classification according to Regulation (EC) No. 1272/2008 [CLP]

#### Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

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### 15.2.2. National regulations

#### Ferrous Sulfate, Heptahydrate (7782-63-0)

Listed on the Canadian Ingredient Disclosure List

#### Water (7732-18-5)

Not listed on the Canadian Ingredient Disclosure List

### 15.3. US State regulations

No additional information available

## SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

|                     |   |
|---------------------|---|
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3                                 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4                                 |
| Aquatic Acute 1     | Hazardous to the aquatic environment — AcuteHazard, Category 1    |
| Aquatic Chronic 1   | Hazardous to the aquatic environment — Chronic Hazard, Category 1 |
| Eye Irrit. 2A       | Serious eye damage/eye irritation, Category 2A                    |
| Skin Irrit. 2       | Skin corrosion/irritation, Category 2                             |
| H301                | Toxic if swallowed  |
| H302                | Harmful if swallowed  |
| H315                | Causes skin irritation  |
| H319                | Causes serious eye irritation                                     |
| H400                | Very toxic to aquatic life  |
| H410                | Very toxic to aquatic life with long lasting effects              |

NFPA health hazard

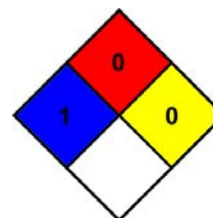
: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



### HMIS III Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : B

SDS US (GHS HazCom 2012)

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