



WEST BENGAL CHEMICAL INDUSTRIES LIMITED

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## Section 1 - Chemical Product and Company Identification

**1.1 Product Name:** Liposomal Iron

**1.2 Product Code:** FPPLI09

**1.3 Relevant identified uses of the substance or mixture and uses advised against:**

Pharmaceutical excipient, dietary supplement, food additive

**1.4 Company Identification:**

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## Section 2 - Hazards Identification

### 2.1 Classification of the Substance or Mixture

Liposomal Iron is not classified as a hazardous substance under GHS (Globally Harmonized System), OSHA, or EU CLP regulations.

### 2.2 Hazard classification:

Eye Irritation Category 2A

Skin Irritation Category 2

Specific Target Organ Toxicity - Single Exposure STOT SE 3

### 2.3 Signal Word:

Warning

### 2.4 Hazard Statements:

H315 – Causes skin irritation

H319 – Causes serious eye irritation

H335 – May cause respiratory irritation

### 2.5 Precautionary Statements:

Prevention

P261 – Avoid breathing dust

P264 – Wash hands and exposed areas thoroughly after handling



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## Section 2 - Hazards Identification

P280 – Wear protective gloves, protective clothing, and eye/face protection

### Response

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

P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing

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

### 2.6 Other Hazards:

None identified.

### 2.7 Potential Health Effects

#### 2.7.1 Eye Contact:

May cause mild irritation with redness. Flush with water if irritation occurs.

#### 2.7.2 Skin Contact:

May cause mild irritation with redness. Flush with water if irritation occurs.

#### 2.7.3 Inhalation:

Inhalation of fine particles may cause mild respiratory irritation. Use protective measures when handling powders.

#### 2.7.4 Ingestion:



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## Section 2 - Hazards Identification

Not expected to be toxic. Large amounts may cause gastrointestinal discomfort (nausea, diarrhea, constipation).

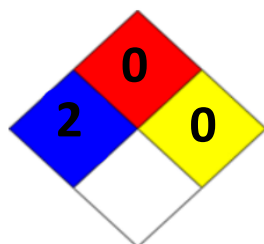
### 2.8 Chronic Health Effects:

No evidence of carcinogenicity, mutagenicity, or reproductive toxicity. Prolonged exposure to large quantities may cause iron overload (hemosiderosis) in susceptible individuals.

### 2.9 Pictogram:



### 2.10 NFPA SCALE:



NFPA SCALE (0-4)

### 2.11 HMIS RATINGS:

|                     |   |
|---------------------|---|
| Health              | 2 |
| Flammability        | 0 |
| Physical Hazard     | 0 |
| Personal protection | E |

HMIS RATINGS (0-4)

## Section 3 - Composition / Information on Ingredients

### 3.1 Ingredient Name Ferric Pyrophosphate (Soluble)



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### Section 3 - Composition / Information on Ingredients

**3.2 CAS Number** 10058-44-3

**3.3 EC Number** 233-190-0

**3.4 % wt:** 100

**3.5 Molecular formula** Fe<sub>4</sub>(P<sub>2</sub>O<sub>7</sub>)<sub>3</sub>

**3.6 Molecular Wt.** 745.21 g/mol

### Section 4 - First Aid Measures

#### 4.1 Description of first aid measures:

##### 4.1.1 General Advice:

Seek medical attention if symptoms persist. Show this safety data sheet to the physician in attendance.

##### 4.1.2 Inhalation:

Remove person to fresh air. If breathing is difficult, provide oxygen and seek medical attention. If not breathing, perform artificial respiration and seek immediate medical assistance.

##### 4.1.3 Skin Contact:

Wash affected area with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and wash before reuse. Seek medical attention if irritation persists.

##### 4.1.4 Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.

##### 4.1.5 Ingestion:

Rinse mouth with water. Do NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention if symptoms develop.

#### 4.2 Most Important Symptoms and Effects, Both Acute and Delayed:

##### 4.2.1 Acute Symptoms:

May cause irritation to the respiratory tract, skin, and eyes.

##### 4.2.2 Delayed Symptoms:

Prolonged exposure may cause mild gastrointestinal disturbances if ingested in large quantities.

#### 4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed:

No specific antidote is available. Treat symptomatically.



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## Section 5 - Fire-Fighting Measures

### 5.1 Extinguishing media:

#### 5.1.1 Suitable Extinguishing Media:

Use extinguishing media appropriate to the surrounding fire. Water spray, dry chemical, carbon dioxide (CO<sub>2</sub>), or foam.

#### 5.1.2 Unsuitable Extinguishing Media:

Do not use water jet as it may spread fire.

### 5.2 Flammability:

This product is not flammable under normal conditions.

### 5.3 Hazardous decomposition products:

In case of fire, decomposition may produce hazardous gases including iron oxides (Fe<sub>2</sub>O<sub>3</sub>, Fe<sub>3</sub>O<sub>4</sub>), phosphorus oxides (P<sub>2</sub>O<sub>5</sub>, PO<sub>4</sub><sup>3-</sup>)

### 5.4 Hazardous Combustion Products:

Iron and phosphorus oxides may be released during combustion.

### 5.5 Fire Fighting Media and Instructions:

Evacuate personnel to a safe area. Prevent fire-fighting runoff from entering water sources and drainage systems.

### 5.6 Special Protective Equipment for Firefighters:

Wear self-contained breathing apparatus (SCBA) with full-facepiece and pressure-demand or positive-pressure mode. Use full protective clothing including gloves, boots, and fire-resistant gear.

### 5.7 Explosion Hazard:

Not considered an explosion hazard under normal conditions.

## Section 6 - Accidental Release Measures

### 6.1 Personal Precautions, Protective Equipment, and Emergency Procedures:

Avoid generating and inhaling dust. Wear appropriate personal protective equipment (PPE) including gloves, safety goggles, and a dust respirator. see Section 8. Ensure adequate ventilation in the area. Evacuate unnecessary personnel from the spill area.

### 6.2 Environmental Precautions:

Prevent material from entering drains, sewers, or waterways. Avoid discharge into soil and groundwater. Inform local authorities if a significant spill occurs.

### 6.3 Methods and Materials for Containment and Cleaning Up:

#### 6.3.1 Small Spill:



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## Section 6 - Accidental Release Measures

Use a dustless method such as vacuuming or wet sweeping. Collect material into a sealed container for proper disposal. Wash affected area with water to remove residues.

### 6.3.2 Large Spill:

Isolate spill area and restrict access. Minimize airborne dust by covering with moistened absorbent material. Use non-sparking tools to collect the material and place it in appropriate waste containers. Dispose of waste in accordance with local, state, and national regulations (see Section 13).

### 6.4 Reference to Other Sections:

Refer to section 8 and section 13.

## Section 7 - Handling and Storage

### 7.1 Precautions for Safe Handling:

Avoid inhalation of dust and contact with skin, eyes, and clothing. Use with adequate ventilation to prevent airborne dust accumulation. Wear appropriate personal protective equipment (PPE) (see Section 8). Keep containers tightly closed when not in use. Avoid eating, drinking, or smoking while handling the product. Wash hands thoroughly after handling. Minimize dust generation and accumulation. Use grounded and explosion-proof equipment when transferring large quantities.

### 7.2 Conditions for Safe Storage, Including Any Incompatibilities:

Store in a cool, dry, and well-ventilated area. Keep away from direct sunlight, heat sources, and moisture. Store in original, tightly sealed containers to prevent contamination. Keep away from incompatible materials such as strong acids, strong bases, and oxidizing agents (see Section 10). Ensure storage area is free from ignition sources and has appropriate spillage containment measures.

## Section 8 - Exposure Controls / Personal Protection

### 8.1 Control Parameters

| Component            | CAS Number | OSHA PEL (TWA)                    | ACGIH TLV (TWA)                           | NIOSH REL (TWA)                           |
|----------------------|------------|-----------------------------------|---|---|
| Ferric Pyrophosphate | 10058-44-3 | 10 mg/m <sup>3</sup> (total dust) | 5 mg/m <sup>3</sup> (respirable fraction) | 5 mg/m <sup>3</sup> (respirable fraction) |

OSHA PEL (Permissible Exposure Limit): Occupational exposure limit set by the U.S. Occupational Safety and Health Administration.



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## Section 8 - Exposure Controls / Personal Protection

ACGIH TLV (Threshold Limit Value): Recommended exposure limit set by the American Conference of Governmental Industrial Hygienists.

NIOSH REL (Recommended Exposure Limit): Exposure limit recommended by the National Institute for Occupational Safety and Health.

### 8.2 Exposure Controls

#### 8.2.1 Engineering Controls:

Use local exhaust ventilation or general ventilation to keep airborne concentrations below exposure limits. If dust generation occurs, ensure dust collection systems or fume hoods are in place. Keep storage containers tightly sealed to minimize exposure.

### 8.3 Personal Protective Equipment (PPE):

#### 8.3.1 Respiratory Protection:

If exposure levels exceed occupational limits, use NIOSH-approved respirators (e.g., N95 dust mask or higher). In case of high exposure, use an air-purifying respirator with HEPA filters.

#### 8.3.2 Eye Protection:

Wear safety goggles or chemical safety glasses (ANSI Z87.1 standard). Use a face shield in case of high exposure to airborne particles.

#### 8.3.3 Hand Protection:

Wear chemical-resistant gloves (e.g., nitrile, neoprene, or latex gloves). Change gloves regularly if contaminated.

#### 8.3.4 Skin and Body Protection:

Wear a lab coat, long-sleeved clothing, or coveralls to prevent skin contact. Use protective footwear to avoid contamination in work areas.

### 8.4 Hygiene Measures:

Wash hands, face, and exposed skin thoroughly after handling. Do not eat, drink, or smoke while handling this material. Shower and change clothes after significant exposure.

### 8.5 Environmental Exposure Controls:

Avoid releasing material into soil, waterways, or drains. Implement spill containment systems if handling large quantities. Ensure proper waste disposal as per local and national regulations (see Section 13).

## Section 9 - Physical and Chemical Properties

|            |   |                 |
|------------|---|-----------------|
| Appearance | : | Powder          |
| Colour     | : | White yellowish |
| Odour      | : | Characteristic  |



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## Section 9 - Physical and Chemical Properties

|                           |   |                   |
|---------------------------|---|-------------------|
| Flammability (solid, gas) | : | Not applicable.   |
| Solubility                | : | None.             |
| Flash point               | : | Not applicable.   |
| pH                        | : | No data available |
| Explosive properties      | : | Not applicable.   |
| Freezing Point            | : | No data available |
| Autoignition temperature  | : | Not applicable.   |
| Odour threshold           | : | No data available |
| Melting point             | : | No data available |
| Initial boiling point     | : | No data available |
| Relative Vapour Density   | : | No data available |
| Decomposition temperature | : | No data available |
| Fat Solubility            | : | No data available |
| Vapour pressure           | : | No data available |
| Evaporation rate          | : | No data available |
| Density                   | : | No data available |
| Partition coefficient (P) | : | No data available |
| Viscosity                 | : | No data available |
| Oxidizing properties      | : | No data available |

## Section 10 - Stability and Reactivity

### 10.1 Reactivity:

No significant reactivity under normal conditions. Not known to undergo hazardous polymerization.

### 10.2 Chemical Stability:

Stable under normal temperature and pressure conditions. Hygroscopic: May absorb moisture from the air.

### 10.3 Possibility of Hazardous Reactions:

Will not polymerize under normal handling conditions. Reacts with strong acids to produce iron salts and phosphate compounds.

### 10.4 Conditions to Avoid:

Moisture, heat and direct sunlight, dust generation.

### 10.5 Incompatible Materials:

Strong acids, strong bases, strong oxidizers.

### 10.6 Hazardous Decomposition Products:





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## Section 10 - Stability and Reactivity

Iron oxides ( $\text{Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$ ), phosphorus oxides ( $\text{P}_2\text{O}_5$ ,  $\text{PO}_4^{3-}$ ) when heated to decomposition. No known hazardous decomposition products under normal storage and use.

### 10.7 Corrosivity:

Non-corrosive in presence of glass

### 10.8 Special remarks on Reactivity:

Not available

### 10.9 Special remarks on Corrosivity:

Not available

### 10.10 Polymerization:

Will not occur

## Section 11 - Toxicological Information

### 11.1 Information on Toxicological Effects

#### Acute Toxicity:

| Route of Exposure | Test Species | Result                       |
|-------------------|--------------|------------------------------|
| Oral LD50         | Rat          | > 2,000 mg/kg (low toxicity) |
| Dermal LD50       | Rabbit       | Not available                |
| Inhalation LC50   | Rat          | Not available                |

#### 11.2 Skin Corrosion/Irritation:

May cause mild skin irritation with prolonged exposure. Not classified as a severe skin irritant.

#### 11.3 Serious Eye Damage/Irritation:

May cause moderate eye irritation. Symptoms: Redness, tearing, discomfort.

#### 11.4 Respiratory or Skin Sensitization:

No evidence of respiratory or skin sensitization. Dust inhalation may cause temporary respiratory irritation.

#### 11.5 Germ Cell Mutagenicity:

No known mutagenic effects based on available data.

#### 11.6 Carcinogenicity:

Not classified as carcinogenic by IARC, NTP, OSHA, or ACGIH. No evidence of cancer-causing potential.

#### 11.7 Reproductive Toxicity:

No known effects on fertility or reproductive performance at typical exposure levels.

#### 11.8 STOT (Specific Target Organ Toxicity) - Single Exposure:



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## Section 11 - Toxicological Information

May cause respiratory irritation due to airborne dust exposure.

### 11.9 STOT - Repeated Exposure:

No significant health effects identified from long-term exposure.

### 11.10 Aspiration Hazard:

Not classified as an aspiration hazard.

## Section 12 - Ecological Information

| Organism                          | Test Type  | Result     | Remarks  |
|-----------------------------------|------------|------------|--|
| Fish (Gobiocypris rarus)          | LC50 (96h) | > 100 mg/L | Low acute toxicity                             |
| Daphnia magna (water flea)        | EC50 (48h) | 2.0 mg/L   | Moderate sensitivity                           |
| Algae                             | EC50 (72h) | > 100 mg/L | Very low toxicity                              |
| Microorganisms (activated sludge) | EC50 (3h)  | 250 mg/L   | Minimal interference with wastewater treatment |

### 12.2 Persistence and Degradability:

Non-persistent in the environment; readily dissolves and disperses in water

### 12.3 Bio-accumulative Potential:

Low bioaccumulation potential due to solubility characteristics.

### 12.4 Mobility in Soil and Water:

High mobility expected in aquatic environments; avoid release into water bodies.

### 12.5 Other Adverse Effects:

No ozone depletion potential (ODP).

No known global warming potential (GWP).

No known endocrine-disrupting effects.

### 12.6 Environmental Precautions:

Prevent release into drains, watercourses, and soil.

### 12.7 Products of biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

### 12.8 Toxicity of the products of biodegradation:

The Product itself and its products of degradation are not toxic.

### 12.9 Special remarks on the products of biodegradation:



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Not Available.

**12.10 BOD 5 AND COD:**

Not Available.

### Section 13 - Disposal Considerations

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

### Section 14 - Transport Information

**14.1 UN Number:**

Not regulated under UN transport regulations.

**14.2 UN Proper Shipping Name:**

Not applicable (Non-hazardous material).

**14.3 Transport Hazard Class(es):**

| Regulatory Body                       | Hazard Class  | Remarks                           |
|---------------------------------------|---------------|-----------------------------------|
| DOT (U.S.)                            | Not regulated | Non-hazardous for transport       |
| IATA (Air Transport)                  | Not regulated | Not classified as dangerous goods |
| IMDG (Sea Transport)                  | Not regulated | Not classified as hazardous       |
| ADR/RID (Road/Rail Transport, Europe) | Not regulated | Not a dangerous substance         |



**14.4 Packing Group:**

Not applicable (Non-hazardous substance).

**14.5 Environmental Hazards:**

Not classified as a Marine Pollutant (IMDG Code). Avoid direct release into waterways and drainage systems.

**14.6 Special Transport Precautions:**



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## Section 14 - Transport Information

Store in a sealed container to prevent spillage. Avoid moisture exposure during transport.

### 14.7 Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable

### 14.8 Additional Transport Information:

No special handling, labeling, or transport measures are required. Product is safe for air, sea, and land transport under normal conditions.

## Section 15 - Regulatory Information

**Federal and State Regulations:** TSCA 8(b) inventory: Ferric pyrophosphate

**Other Regulations:** Not available.

**Other Classifications: WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC): R36/38-** Irritating to eyes and skin.

**HMIS (U.S.A.): Health Hazard: 2**

**Fire Hazard: 0**

**Reactivity: 0**

**Personal Protection: E**

**National Fire Protection Association (U.S.A.):**

**Health: 2**

**Flammability: 0.**

**Reactivity: 0**

**Specific hazard:**

**Protective Equipment:** Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

## Section 16 - Other Information

**Disclaimer:** This material safety data sheet is provided as an information resource only. WEST BENGAL CHEMICAL INDUSTRIES LIMITED believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.

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