

Material Safety Data Sheet (MSDS)

Product Name: Ferrous Sulphate Monohydrate Feed grade

MSDS Generate Date: 20-05-2017

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Supplier:

Rawpharma Biz Pvt Ltd

1101- City Centre 2,

Science City Road,

Sola Ahmedabad Gujarat,

India - 380060.

Contact No.: +91 97272 88479

Email: info@rawpharmabiz.com

Website: www.rawpharmabiz.com

1. Identification of the Substance/Preparation and Company

- **Product name:** Ferrous Sulphate Monohydrate (Feed Grade)
- **Other names / Synonyms:** Iron(II) sulfate monohydrate (feed grade)
- **Use:** Feed additive / nutritional iron source for animal feed; industrial uses dependent on supplier specification.
- **Form:** Solid crystalline powder or granules (appearance may vary by batch).

2. Composition / Information on Ingredients

- **Active ingredient:** Ferrous sulphate monohydrate (feed grade).
- **Impurities / additives:** May contain small amounts of free moisture, trace heavy metals or inert anti-caking additives depending on supplier specification. Refer to the product Certificate of Analysis for exact composition.
- **Note:** This MSDS covers the feed-grade product; specifications (purity, iron content) should be taken from the supplier's technical data sheet.

3. Hazards Identification (Summary)

- **GHS classification (summary):** Not classified as a severe acute toxicant in normal feed-grade concentrations; however, it is an irritant to eyes and the respiratory tract in dust form. Large oral doses of ferrous salts are toxic (iron poisoning).
- **Main hazards:**
 - Inhalation of dust may cause respiratory irritation.
 - Eye contact may cause mechanical irritation and mild chemical irritation.
 - Ingestion of large quantities can produce gastrointestinal irritation, vomiting, and systemic iron toxicity.
 - May be harmful to aquatic organisms if large quantities enter watercourses (consult local regs).
- **Label elements:** Keep out of reach of children. Avoid breathing dust. Use appropriate PPE. If swallowed, seek medical attention — do not induce vomiting unless directed by medical personnel.

4. First Aid Measures

- **Inhalation:** Move person to fresh air. If breathing difficulty occurs or irritation persists, obtain medical attention.
- **Skin contact:** Wash with soap and water. Remove contaminated clothing and launder before reuse. Seek medical attention if irritation develops or persists.
- **Eye contact:** Rinse cautiously with water for at least 15 minutes, holding eyelids open. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.
- **Ingestion:** Do NOT induce vomiting unless instructed by medical personnel. Rinse mouth with water. Seek immediate medical advice if a large amount has been swallowed or if symptoms (nausea, vomiting, abdominal pain, weakness) appear. For suspected iron overdose, treat as a medical emergency.

5. Fire-Fighting Measures

- **Flammability:** Non-flammable solid. Not a fire risk under normal conditions.
 - **Suitable extinguishing media:** Use extinguishing media appropriate for surrounding fire (water spray, foam, dry chemical, CO₂).
 - **Special hazards:** Decomposition at very high temperatures may release sulfur oxides and iron oxides.
 - **Protective equipment for firefighters:** Use self-contained breathing apparatus and full protective clothing if product is involved in a fire. Avoid breathing combustion products.
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6. Accidental Release Measures

- **Personal precautions:** Avoid dust formation. Use appropriate PPE (see Section 8). Keep unnecessary personnel away. Avoid inhalation and contact with eyes/skin.
 - **Environmental precautions:** Prevent large quantities entering drains, sewers or watercourses. For spills that may reach waterways, notify authorities.
 - **Cleanup methods:** Sweep up or vacuum (with HEPA filter) and place in suitable sealed container for disposal or recovery. Avoid dry sweeping that raises dust — where possible use wet methods or a vacuum. Wash contaminated area with water after material pickup. Dispose according to local regulations.
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7. Handling and Storage

- **Handling:** Minimize dust formation. Use local exhaust ventilation where dust may be generated. Avoid ingestion, inhalation and contact with skin/eyes. Do not eat, drink or smoke in work areas. Wash hands after handling.
 - **Storage:** Store in a cool, dry, well-ventilated area in tightly closed containers. Keep away from incompatible materials (strong oxidizers). Protect from moisture and prolonged exposure to air. Keep out of reach of children and animals.
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8. Exposure Controls / Personal Protection

- **Occupational exposure limits:** Follow local regulatory limits for iron salts and dust; where no limits exist, control exposure to minimize dust (use engineering controls).
- **Engineering controls:** Use process enclosures, local exhaust ventilation and good general ventilation to control dust.

- **Personal protective equipment (PPE):**
 - Respiratory protection: If airborne dust exposure above recommended limits is possible, use an approved particulate respirator (e.g., N95 or higher as required by local regulations).
 - Eye protection: Safety goggles or face shield.
 - Skin protection: Protective gloves and clothing to avoid prolonged skin contact.
 - Hygiene: Wash hands thoroughly after handling; remove contaminated clothing and protective equipment before entering eating areas.
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9. Physical and Chemical Properties

- **Appearance:** Greenish to bluish crystalline powder or granules (feed grade may vary).
 - **Odour:** Odourless to slight characteristic odor.
 - **pH:** Slightly acidic in aqueous solution (depends on concentration).
 - **Melting / decomposition:** Decomposes on heating; may oxidize to iron oxides and release sulfur oxides.
 - **Solubility:** Soluble in water (forms acidic solution); solubility depends on temperature.
 - **Bulk density:** Varies by particle size and packing. Refer to supplier datasheet.
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10. Stability and Reactivity

- **Chemical stability:** Stable under recommended storage conditions.
 - **Conditions to avoid:** Avoid moisture uptake, strong oxidising conditions, excessive heat.
 - **Incompatible materials:** Strong oxidizers, strong bases (may react), strong reducing agents not likely relevant.
 - **Hazardous decomposition products:** Sulfur oxides (SO_x), iron oxides on heating/decomposition.
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11. Toxicological Information

- **Acute toxicity:** Low acute toxicity by dermal and inhalation routes under normal handling; ingestion of large amounts can cause iron poisoning.
 - **Irritation:** Dust may irritate respiratory tract and eyes; prolonged or repeated skin contact may cause mild irritation.
 - **Chronic effects:** Prolonged excessive exposure to soluble iron compounds at high doses may lead to systemic iron accumulation—monitor per occupational health guidance.
 - **Carcinogenicity / Mutagenicity / Reproductive:** No clear classification as carcinogenic for feed-grade ferrous sulfate at typical exposure levels. Use standard occupational controls. (Refer to local regulatory sources for formal classifications.)
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12. Ecological Information

- **Ecotoxicity:** In moderate concentrations, soluble iron can affect aquatic life and water quality. Avoid release to waterways.
 - **Mobility:** Soluble in water — can move with runoff.
 - **Persistence and degradability:** Iron is a naturally occurring element; sulfate will persist in the environment but is biogeochemically cycled.
 - **Bioaccumulation:** Iron is an essential nutrient and usually not bioaccumulative in the sense of persistent organic pollutants; however local accumulation can affect aquatic systems.
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13. Disposal Considerations

- **Waste treatment methods:** Dispose of in accordance with local, state and national regulations. Product that is unused may be reclaimed or recycled if possible.
 - **Contaminated packaging:** Empty containers should be triple-rinsed and disposed of or recycled according to local regulations. Do not re-use containers for food or feed.
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14. Transport Information — DETAILED (Expanded)

Overview (summary):

Ferrous sulphate monohydrate (feed grade) is generally **not classified** as a dangerous good for transport under many international transport regulations (ADR, IMDG, IATA) when shipped as a solid, non-restricted feed additive. **However**, classification can depend on concentration,

packaging, local rules and whether the product is contaminated with other hazardous substances. Always check and comply with the specific regulations applicable to the mode of transport and origin/destination countries.

Detailed guidance and recommended actions before shipping:

1. Determine classification for the specific shipment:

- Confirm the exact product composition and impurity profile from the supplier's Technical Data Sheet / Certificate of Analysis. If the product contains other hazardous impurities or additives, additional classification may apply.
- Check national/regional transport regulations (ADR for road in Europe, IMDG for sea, IATA/ICAO for air, local domestic rules elsewhere).

2. Common regulatory stance:

- *Road (ADR)*: Typically not classified as hazardous for transport when supplied as a solid feed additive. No UN number assigned in many cases.
- *Sea (IMDG)*: Typically not regulated under IMDG as a dangerous substance when shipped dry as feed grade.
- *Air (IATA/ICAO)*: Air transport may be restricted for some bulk chemicals — many solid mineral feed additives are allowed but carriers often require documentation. Confirm with airline and IATA Dangerous Goods Regulations.
- *Note*: If the substance is to be shipped as a large bulk powder or a concentrate or is mixed with other materials that change its hazard profile, classification can change.

3. UN Number / Proper Shipping Name / Class / Packing Group:

- **Do not assume a UN number** — before assigning a UN number or class, verify with a qualified Dangerous Goods Safety Adviser (DGSA) or the competent authority. If your specific product is classified under an environmental hazard or as “Oxidizing solid” due to additives, a UN number and class could apply. For many feed-grade ferrous sulfate products, no UN assignment is necessary.

4. Labeling and Documentation:

- If not classified as dangerous, shipments should still include a Commercial Invoice, Packing List, and SDS (this MSDS).
- If classified as non-dangerous, no dangerous goods declarations are required — state “Not restricted” on transport paperwork as appropriate.
- If classified as dangerous, follow required labeling, placarding and dangerous goods declaration per the applicable modal regulations.

5. Packaging Recommendations:

- Use robust, moisture-resistant packaging (e.g., multi-wall paper bags with polyethylene liner, or sealed bulk bags).
- Keep packages upright, sealed and protected from rain and seawater. Secure during transport to prevent spills.
- For bulk shipments, use containers acceptable to carriers and ensure cargo is adequately secured.

6. Segregation and Stowage:

- Store away from strong oxidizers and incompatible materials.
- In maritime transport, follow IMDG segregation rules if any incompatible substances are present on the same vessel.

7. Emergency procedures in transport incidents (recommended):

- **Spill during transport:** Avoid creating dust. Sweep up material and collect for recovery or disposal. Prevent entry to drains/waterways; use booms or absorbents if necessary. Wear suitable PPE and respiratory protection if dust is present. Notify local authorities if significant release to environment occurs.
- **Fire during transport:** Product is not readily combustible, but in case of fire involving other cargo, fight fire with media suitable for surrounding materials; fire fighters should use self-contained breathing apparatus.
- **Medical emergencies:** Provide SDS to medical responders. For ingestion or major exposure en route, seek emergency medical attention and provide supportive care as described in Section 4.

8. Transport contacts and certificates:

- Carry a copy of this MSDS with each shipment. When moving internationally, ensure required customs and phytosanitary documentation for feed additives are in order. Contact the supplier for any certificates of analysis or compliance required by the consignee.

9. Carrier/Authority Confirmation:

- Always verify acceptability with the chosen carrier(s) (road hauler, shipping line, airline) before booking shipment. Carriers may impose additional carriage conditions even for non-regulated materials.

Bottom line: For most feed-grade ferrous sulfate monohydrate shipments, the product is **not** regulated as a dangerous good for transport; nevertheless, before shipping you must (a) verify the specific product composition, (b) confirm regulatory status with relevant transport regulations and carriers, and (c) prepare appropriate packaging, documentation and emergency

procedures. When in doubt, consult a qualified Dangerous Goods Specialist or national competent authority.

15. Regulatory Information

- **General:** Comply with applicable national and local regulatory requirements related to feed additives, chemicals, workplace exposure and environmental protection.
 - **Feed regulations:** Ensure product meets local feed additive regulations and labeling requirements when intended for animal feed. Maintain Certificates of Analysis and compliance documents as required by regulatory authorities.
 - **Safety / environmental laws:** Follow local hazardous substances rules where applicable.
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16. Other Information

- **Disclaimer:** Information given in this MSDS is believed to be correct as of the revision date, but no warranty (express or implied) is made. The user is responsible for determining suitability of this information for their particular purposes.
- **MSDS Generate Date:** 20-05-2017
- **Revision Date:** 30-12-2024
- **Website:** www.rawpharmabiz.com
- MSDS are based on the manufacturer's provided information.