# Safety Data Sheet (MSDS)

**According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA StandardsProduct Name:** Manganese Sulphate Monohydrate (Feed Grade)**Revision Date:** 27 FEB 2026

## SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 **Product Identifiers**

- Product Name: Manganese Sulphate Monohydrate (Feed Grade)
- Product Number: MSM-F20260229
- Brand: SIGALD
- CAS-No.: 10034-96-5
- Synonyms: Manganese (II) sulfate monohydrate; Sulfuric acid manganese (II) salt monohydrate
- Molecular Formula: $MnSO_4 \cdot H_2O$
- Molecular Weight: 169.02 g/mol

1.2 **Details of the supplier of the safety data sheet**

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
- Telephone: +86-021-50350029
- Fax: +86-021-50350029

1.3 **Emergency telephone**

- Emergency Phone #: +86-021-50350029 (CHEMTREC)

1.4 **Relevant Identified Uses and Uses Advised Against**

- Identified Uses: Manganese mineral supplement for animal feed; essential trace element for poultry, livestock, aquaculture and ruminants; promotes bone development, enzyme activity and reproductive performance.
- Uses Advised Against: Not for human pharmaceutical use; no use in industrial electroplating without further purification; not for cosmetic formulation.

## SECTION 2: Hazards Identification

- **GHS Classification**: Eye Irritation (Category 2); Skin Irritation (Category 2); Aquatic Acute Toxicity (Category 2)
- **GHS Label Elements**
  - Hazard Pictogram: (Exclamation mark), (Environment)
  - Signal Word: **Warning**
  - Hazard Statements: H315 (Causes skin irritation), H319 (Causes serious eye irritation), H401 (Toxic to aquatic life)
  - Precautionary Statements: P264, P280, P302+P352, P305+P351+P338, P332+P313, P501
- **Physical and Chemical Hazards**: Non-combustible, non-explosive; slightly hygroscopic; stable under normal use conditions.

- **Health Hazards**: Mild skin and eye irritation upon direct contact; inhalation of dust may cause mild respiratory discomfort; no acute oral toxicity at feed grade exposure levels.
- **Environmental Hazards**: Toxic to aquatic life; avoid direct discharge into water bodies; no bioaccumulation potential in terrestrial organisms.
- **Other Hazards**: No additional hazards identified for industrial and feed grade handling.

**SECTION 3: Composition/Information on Ingredients**

- **Substance / Mixture**: Pure inorganic mineral salt
- **Active Component**: Manganese Sulphate Monohydrate (100%, CAS 10034-96-5)
- **Hazardous Impurities**: None (heavy metals controlled to feed grade limit requirements)
- **Other Components**: No other added ingredients

**SECTION 4: First Aid Measures**

4.1 **Description of First-Aid Measures**

- If Inhaled: Move to fresh air, keep at rest in a position comfortable for breathing. If coughing or irritation persists, consult a doctor.
- In Case of Skin Contact: Rinse skin thoroughly with plenty of running water and mild soap for 10 -15 minutes. Remove contaminated clothing and wash before reuse.
- In Case of Eye Contact: Rinse cautiously with water for 15-20 minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists, seek medical advice immediately.
- If Swallowed: Rinse mouth with water. Give plenty of water to drink. Do not induce vomiting. No toxic effects expected at feed grade intake; consult a doctor only if severe gastrointestinal discomfort occurs.

4.2 **Most Important Symptoms and Effects**

- Acute Effects: Redness, itching of skin; eye redness, tearing; mild cough from dust inhalation.
- Delayed Effects: No known delayed toxic effects based on current scientific data.

4.3 **Immediate Medical Attention**: Seek medical help only if irritation, coughing or gastrointestinal symptoms persist or worsen.4.4 **Notes to Physician**: Treat symptomatically; no specific antidote available.

**SECTION 5: Fire-Fighting Measures**

5.1 **Extinguishing Media**: Suitable - Water spray, foam, carbon dioxide ($CO_2$), dry powder; Unsuitable - No limitations of extinguishing agents.5.2 **Special Hazards Arising from the Substance**: Non-combustible; upon extreme high-temperature decomposition (>850℃), may release toxic sulfur oxides ($SO_x$) and manganese oxide fumes.5.3 **Advice for Firefighters**: Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective gear if decomposition is suspected; fight fire from a safe distance; prevent fire runoff from entering water bodies.

**SECTION 6: Accidental Release Measures**

6.1 **Personal Precautions**: Wear dust mask (FFP1), nitrile rubber gloves and safety goggles; avoid dust inhalation and eye/skin contact; ensure good ventilation at the spill site.6.2 **Environmental Precautions**: **Prevent spilled powder from entering drains, sewers, rivers or other water bodies** to avoid aquatic toxicity; contain spillage to minimize environmental contamination.6.3 **Methods for Clean-Up**:

- Small Spill: Gently sweep up the powder and collect in a sealed plastic container for reuse or disposal.
- Large Spill: Contain with plastic barriers; transfer to sealed drums for professional disposal; do not wash into drainage systems.6.4 **Reference**: For disposal, see Section 13.

**SECTION 7: Handling and Storage**

7.1 **Precautions for Safe Handling**

- Operate in a well-ventilated area; use dust suppression measures to avoid powder formation and inhalation.
- Avoid contact with eyes, skin and respiratory tract; wear specified PPE during handling.
- Do not eat, drink or smoke while handling the product; wash hands thoroughly after handling.
- Avoid mixing with strong alkalis (may cause precipitation) and strong oxidizing agents.

7.2 **Conditions for Safe Storage**

- Storage Conditions: Store in a cool, dry, well-ventilated warehouse; keep container tightly closed to prevent moisture absorption and caking; storage temperature ≤ 30℃, relative humidity ≤ 75%.
- Incompatibilities: Strong alkalis (e.g., NaOH, KOH), strong oxidizing agents (e.g., hydrogen peroxide), barium salts.
- Storage Class (TRGS 510): 13 (Non-Hazardous Solids, with minor hazards)
- Shelf Life: 24 months (unopened, under specified storage conditions).

**SECTION 8: Exposure Controls/Personal Protection**

8.1 **Control Parameters**

- Occupational Exposure Limit (OEL): Manganese (inhalable dust) - TWA 0.2 mg/m³ (Mn)8.2 **Exposure Controls**
- Engineering Controls: Local exhaust ventilation (LEV) recommended for large-scale processing; dust collection system to reduce airborne powder.
- Personal Protective Equipment (PPE):
  - Eye/Face Protection: Impact-resistant safety goggles with side shields (mandatory for all handling).
  - Skin Protection: Nitrile rubber gloves (thickness ≥ 0.11 mm) and protective clothing for prolonged contact.
  - Respiratory Protection: FFP1 dust mask for regular handling; FFP2 mask for large-scale spill or dust generation.
  - Hand Washing: Provide clean water and soap for hand washing at the workplace.

- Environmental Exposure: Install dust collection systems to prevent environmental release; treat wash water before discharge.

**SECTION 9: Physical and Chemical Properties**

a) Physical State: Crystalline powderb) Color: Pale pink to light redc) Odor: Odorlessd) Melting Point/Freezing Point: Decomposes at ~200℃ (loses water, then decomposes)e) Boiling Point: Not applicable (decomposes before boiling)f) Flammability: Non-combustibleg) Flammability Limits: Not applicableh) Flash Point: Not applicablei) Autoignition Temperature: > 600℃j) Decomposition Temperature: ≥ 200℃k) pH Value (5% in $H_2O$, 25℃): 3.5 - 6.0l) Viscosity: Not applicable (solid)m) Water Solubility: Freely soluble in water (≈ 70 g/L at 25℃)n) Solubility in Organic Solvents: Insoluble in ethanol, ether, chloroform and most organic solventso) Vapor Pressure (25℃): Negligible (< 0.0001 hPa)p) Density (25℃, solid): 2.95 g/cm³q) Bulk Density: 1.2 - 1.5 g/cm³r) Explosive Properties: Not explosives) Oxidizing Properties: Nonet) Hygroscopy: Slightly hygroscopic

**SECTION 10: Stability and Reactivity**

10.1 **Chemical Stability**: Stable under recommended storage and use conditions (≤ 30℃, dry, sealed); stable in neutral and slightly acidic aqueous solutions.10.2 **Possibility of Hazardous Reactions**: No hazardous reactions under normal use and handling conditions; no polymerization.10.3 **Conditions to Avoid**: High temperature (>200℃), direct sunlight, excessive moisture, contact with strong alkalis/oxidizing agents.10.4 **Incompatible Materials**: Concentrated sodium hydroxide, potassium hydroxide, hydrogen peroxide, barium chloride, strong ammonia water.10.5 **Hazardous Decomposition Products**: Sulfur dioxide ($SO_2$), sulfur trioxide ($SO_3$), manganese oxide (MnO, $MnO_2$) fumes upon thermal decomposition.

**SECTION 11: Toxicological Information**

11.1 **Information on Toxicological Effects**

- Acute Toxicity: Oral (Rat, $LD_{50}$) = 2730 mg/kg (low toxicity); Dermal (Rabbit, $LD_{50}$) > 5000 mg/kg (non-toxic via skin); Inhalation (Rat, $LC_{50}$) > 10 mg/m³ (4-hour exposure)
- Skin Corrosion/Irritation: Mild irritation (rabbit test, 4-hour exposure)
- Serious Eye Damage/Eye Irritation: Category 2 (causes serious eye irritation in rabbit tests)
- Respiratory/Skin Sensitization: No sensitizing effects reported in standard tests
- Germ Cell Mutagenicity: No mutagenic effects in Ames test and chromosome aberration test
- Carcinogenicity: IARC Class 3 (not classifiable as to its carcinogenicity to humans); no carcinogenic effects in animal feed studies
- Reproductive Toxicity: No adverse reproductive effects in animal tests at feed grade exposure levels
- Specific Target Organ Toxicity: No target organ toxicity at normal use levels
- Aspiration Hazard: Low (solid powder, no aspiration risk for animals/humans)

11.2 **Additional Information**: Toxicological data confirms safe use at approved feed additive levels; manganese is an essential trace element for animal metabolism.

**SECTION 12: Ecological Information**

12.1 **Toxicity**: Fish (Zebrafish, $LC_{50}$) = 180 mg/L (96-hour exposure); Daphnia ($EC_{50}$) = 120 mg/L (48-hour exposure); Algae ($EC_{50}$) = 250 mg/L (72-hour exposure) - toxic to aquatic life12.2 **Persistence and Degradability**: Not biodegradable (inorganic mineral); naturally occurs in the environment.12.3 **Bioaccumulative Potential**: Very low (log Kow < 0); no bioaccumulation in aquatic or terrestrial organisms.12.4 **Mobility in Soil**: Moderate mobility; binds to soil organic matter and clay minerals; low leaching risk in normal soil conditions.12.5 **PBT/vPvB Assessment**: Not classified as PBT/vPvB (no bioaccumulation, low terrestrial toxicity).12.6 **Endocrine Disrupting Properties**: No endocrine disrupting effects reported in standard tests.12.7 **Other Adverse Effects**: Excessive release into water bodies may cause acute toxicity to aquatic invertebrates and fish; no long-term environmental impacts at normal use levels.

**SECTION 13: Disposal Considerations**

13.1 **Waste Treatment Methods**

- Product Waste: Uncontaminated waste can be reused as feed additive; contaminated waste must be disposed of through licensed hazardous waste treatment facilities in accordance with local/national/international regulations. Do not dump into the environment.
- Packaging Waste: Rinse empty containers thoroughly with water; collect rinse water for treatment; dispose of rinsed packaging as non-hazardous waste or recycle.13.2 **Disposal Notes**: For small amounts of uncontaminated waste, can be mixed with fertilizer for agricultural use (in compliance with local regulations); incineration is not recommended (no need for inorganic mineral).

**SECTION 14: Transport Information**

14.1 **UN Number**: ADR/RID: 3077; IMDG: 3077; IATA-DGR: 307714.2 **UN Proper Shipping Name**: ADR/RID: Environmentally hazardous substance, solid, n.o.s. (Manganese Sulphate Monohydrate); IMDG: Environmentally hazardous substance, solid, n.o.s. (Manganese Sulphate Monohydrate); IATA-DGR: Environmentally hazardous solid, n.o.s. (Manganese Sulphate Monohydrate)14.3 **Transport Hazard Class(es)**: ADR/RID: 9; IMDG: 9; IATA-DGR: 914.4 **Packaging Group**: ADR/RID: III; IMDG: III; IATA-DGR: III14.5 **Environmental Hazards**: ADR/RID: Yes; IMDG Marine Pollutant: Yes (P); IATA-DGR: Yes14.6 **Special Precautions for User**: Transport at ≤ 30℃; avoid direct sunlight, rain, moisture and package collision; prevent powder leakage; do not transport with food, feed raw materials, strong alkalis or oxidizing agents.14.7 **Incompatible Materials**: Avoid transport with strong acids, strong alkalis, oxidizing agents and foodstuffs.

**SECTION 15: Regulatory Information**

15.1 **National Regulations (China)**

- Hazardous Chemical Safety Management Regulation (Class 9 hazardous substance)
- Feed Hygiene Standard (GB 13078)
- Feed Additive Variety Catalogue (Ministry of Agriculture and Rural Affairs)

- Environmental Protection Law (Regulations for hazardous waste disposal)15.2 **International Regulations**
- GHS Classification (Rev. 9): Skin Irritation Cat 2, Eye Irritation Cat 2, Aquatic Acute Toxicity Cat 2
- REACH (EU): Registered; not listed in SVHC Candidate List; complies with EC 1831/2003 (feed additives)
- TSCA (US): Listed on the TSCA Inventory; approved for animal feed use (FDA)
- IMDG Code: Class 9, Marine Pollutant (P)15.3 **Other Regulations**: Comply with local feed safety, hazardous chemical transport and environmental protection regulations; follow the maximum addition limit for trace minerals in animal feed.

**SECTION 16: Other Information**

- **Further Information**: This MSDS is based on current scientific knowledge and complies with GB/T 16483, GB/T 17519, GHS, IMDG and IATA standards. It is intended for safe handling, storage, transport and disposal of feed grade manganese sulphate monohydrate. The supplier is not liable for damage caused by improper use, non-compliance with safety precautions or unapproved use.
- **Revision History**: First version (27 FEB 2026)