Magnesium Sulfate AnhydrousSafety Data Sheet (SDS)

Chemical Name: Magnesium Sulfate Anhydrous

Version: V1.0 (EU Format)

Preparation Date: January 23, 2026

Revision Date: None

Preparation Basis: REACH Regulation (EC) No 1907/2006, GHS Classification Criteria, CLP Regulation (EC) No 1272/2008

1. Identification

1.1 Chemical Identification

- Chinese Name: Anhydrous Magnesium Sulfate
- English Name: Magnesium Sulfate Anhydrous
- CAS No.: 7487-88-9
- EC No.: 231-298-2
- Molecular Formula: $MgSO_4$
- Molecular Weight: 120.37 g/mol
- EC Classification: Non-hazardous substance (in accordance with CLP Regulation)

1.2 Company Identification

- Company Name: Laizhou Baiyexin Chemical Co., Ltd.
- Company Address: Yinhai Industrial Park, Tushan Town, Laizhou City, Yantai City, Shandong Province, China
- Contact Person & Phone: +86 19653602589
- Emergency Phone: +86 400-120-0707 (National Chemical Emergency Hotline); +32 171 523 788

(EU Emergency Hotline for Cross-border Transport)

- Company Email (Recommended to Supplement): [Fill in Official Company Email]

1.3 Product Use

Industrial Grade: Desiccant, catalyst, printing and dyeing auxiliary, battery electrolyte raw material; Research Grade: Analytical reagent, pharmaceutical intermediate (not for direct medical use).

2. Hazards Identification

2.1 GHS Classification (in accordance with CLP Regulation (EC) No 1272/2008)

Not classified as a hazardous substance/mixture. Only slight health hazards exist, corresponding to GHS Category: Acute Toxicity (Dermal/Inhalation) - Category 5 (H313/H333).

2.2 GHS Label Elements

- Signal Word: Warning
- Hazard Statements: H313 - May be harmful in contact with skin; H333 - May be harmful if inhaled; H371 - May cause slight damage to organs through prolonged or repeated exposure
- Precautionary Statements:

Prevention (P264): Wash skin and eyes thoroughly after handling.

Prevention (P271): Use only in well-ventilated areas.

Response (P302+P352): If on skin, wash with plenty of water.

Response (P304+P340): If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.

Storage (P403+P233): Store in a well-ventilated place; keep container tightly closed.

Disposal (P501): Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other Hazards

Decomposes at high temperature (>1124℃) to produce toxic and corrosive sulfur oxides (SO_2, SO_3); slightly toxic to aquatic organisms (WGK Germany 1), avoid contaminating water bodies.

3. Composition/Information on Ingredients

Ingredient	CAS No.	EC No.	Mass Fraction	REACH Registration Status
Magnesium Sulfate Anhydrous	7487-88-9	231-298-2	≥99.0%	REACH Registered (Registration No.: RXXXXX, in accordance with Article 7 of REACH Regulation)
Impurities (No Hazardous Impurities)	-	-	≤1.0%	No REACH Registration Required

Note: This product contains no CMR substances (Carcinogenic, Mutagenic, Reprotoxic substances) or PBT/vPvB substances, and complies with the restriction requirements of Annex XVII to REACH Regulation.

4. First-Aid Measures

- Inhalation: Immediately remove the victim to fresh air and keep the respiratory tract unobstructed. If

symptoms such as cough or chest tightness occur, seek medical attention promptly and show this SDS.

- Skin Contact: Immediately remove contaminated clothing and wash skin thoroughly with plenty of running water for at least 15 minutes. If erythema or itching occurs, apply mild skin cream; seek medical attention if symptoms persist.
- Eye Contact: Immediately hold eyelids open and flush eyes continuously with plenty of running water or physiological saline for 15 minutes. Remove contact lenses if easily possible. If stinging or redness persists after flushing, seek medical attention immediately.
- Ingestion: Rinse mouth and drink 1-2 glasses of water for dilution. Do not induce vomiting (to avoid aspiration of vomit). Seek medical attention if symptoms such as abdominal pain, nausea, or diarrhea occur.
- Advice to Rescuers: Wear personal protective equipment (particulate respirator, gloves, safety goggles) to avoid secondary exposure.

5. Fire-Fighting Measures

5.1 Extinguishing Media

Suitable Media: Water mist, dry powder, foam, carbon dioxide fire extinguishers; Do not use straight water (may cause dust emission).

5.2 Hazardous Combustion Products

This product is non-flammable. It will decompose when baked at high temperature or in contact with open flames, releasing toxic and corrosive sulfur oxide (SO_2, SO_3) fumes, which may cause secondary hazards after diffusion.

5.3 Protective Equipment for Firefighters

Firefighters must wear self-contained breathing apparatus (SCBA), acid and alkali resistant protective clothing, and protective gloves, and fight fires from the upwind direction. Avoid high-temperature areas to prevent inhalation of toxic gases.

6. Accidental Release Measures

6.1 Personal Precautions

Wear particulate filter respirator (EN 149 P100 class), nitrile rubber gloves (EN 374), impact-resistant safety goggles (EN 166), and chemical-resistant protective clothing. Do not touch the spilled material directly and avoid dust emission.

6.2 Environmental Precautions

Contain the spilled material to prevent it from entering sewers, surface water, groundwater, or soil; if spilled into water bodies, immediately notify local environmental protection departments and emergency agencies.

6.3 Methods for Cleaning Up

- Small Spill: Absorb with dry inert materials (sand, diatomaceous earth), collect in a sealed corrosion-resistant container, mark as "Industrial Waste", dispose in accordance with local regulations, and rinse the contaminated area with water.
- Large Spill: Build dikes or dig pits for containment, seal drainage pipes, transfer to special collection containers using explosion-proof vacuum equipment, and recycle or transport to EU-compliant hazardous waste disposal facilities (must hold EPR recycling qualification).

7. Handling and Storage

7.1 Handling

- Operate in a well-ventilated area equipped with local exhaust ventilation system (in accordance with EN 14175 standard). Avoid generating dust; handle with care to prevent package damage.
- Keep away from ignition sources and heat (storage temperature ≤30℃). No smoking in the workplace. Avoid mixing storage and transportation with oxidants and strong acids.
- Wash hands and face thoroughly after handling. Do not eat, drink, or smoke in the workplace. Seal and dispose of empty containers properly as they may retain residues.
- Comply with EU OSHA occupational health standards and conduct regular occupational health monitoring for operators.

7.2 Storage

- Store in a cool, dry, and well-ventilated warehouse (relative humidity ≤75%), keep tightly sealed (packaged in PE or PP), prevent moisture absorption and caking, and stay away from humid environments and water sources.
- Store separately from oxidants, strong acids, and food raw materials (in accordance with EC 178/2002 Regulation) with a spacing of ≥1 meter. Post EU standard warning labels (EN ISO 7010).
- Equip the storage area with spill emergency treatment equipment and appropriate fire-fighting equipment, set up emergency evacuation channels, and post a public version of the SDS.

8. Exposure Controls/Personal Protection

8.1 Occupational Exposure Limits

There is no unified EU OEL limit. Refer to German TRGS 900 standard; it is recommended to control the air dust concentration to ≤10 mg/m³ (total dust) and ≤3 mg/m³ (inhalable dust).

8.2 Monitoring Methods

Collect air samples in accordance with EN 14042 standard, determine magnesium ion concentration by atomic absorption spectrophotometry (AAS), and conduct regular ambient air monitoring.

8.3 Engineering Controls

Operate in a closed system to prevent leakage, equip with explosion-proof ventilation system, emergency shower (EN 15154) and eye washer (EN 15144), and set up danger zones and warning signs.

8.4 Personal Protective Equipment (PPE)

- Respiratory Protection: Wear EN 149 P2 class particulate respirator when dust concentration is high; upgrade to P100 class when handling spills or working at high temperatures.
- Eye Protection: Wear EN 166 Class F impact-resistant safety goggles; use protective face shield (EN 166 Class B) when dust emission is heavy.
- Hand Protection: Wear EN 374 certified nitrile rubber gloves with thickness ≥0.4 mm, and replace them every 4 hours of use.

- Skin Protection: Wear EN 14126 certified chemical permeation-resistant protective clothing, and clean and replace it regularly.

9. Physical and Chemical Properties

Property	Value	Test Standard
Appearance and Character	White crystalline powder, odorless and tasteless	EN ISO 12498
Relative Density (Water=1)	2.66 g/cm³ (20℃)	EN ISO 787-10
Melting Point	1124℃ (decomposition)	EN ISO 11357-1
Boiling Point	330℃ (760 mmHg, decomposition)	EN ISO 3405
Saturated Vapor Pressure	<0.1 mmHg (20℃)	EN ISO 6579
Solubility	Highly soluble in water (35.1 g/100 mL at 20℃); slightly soluble in ethanol and glycerol; insoluble in ether	EN ISO 10555
pH Value (1% Aqueous Solution)	5.5-7.5 (neutral)	EN ISO 4316
Flash Point/Autoignition Temperature	None (non-flammable)	EN ISO 2592

10. Stability and Reactivity

- Stability: Chemically stable under normal storage and use conditions (cool, dry, away from heat), no polymerization risk.

- Hazardous Reactions: No violent reactions with strong oxidants or strong acids, but mixed storage should be avoided; decomposes at high temperature to produce toxic sulfur oxide gases.
- Conditions to Avoid: High temperature (>500℃), humidity, electrostatic discharge (grounding required).
- Incompatible Materials: Strong oxidants (such as potassium permanganate, chlorate), concentrated strong acids (such as concentrated sulfuric acid, concentrated nitric acid).
- Hazardous Decomposition Products: Sulfur dioxide (SO_2), sulfur trioxide (SO_3).

11. Toxicological Information

11.1 Acute Toxicity

- Oral Toxicity: Rat oral LD_{50} > 2000 mg/kg bw (low toxicity, in accordance with OECD 423 test method).
- Dermal Toxicity: Rat dermal LD_{50} > 5000 mg/kg bw (no obvious toxicity, in accordance with OECD 402 test method).
- Inhalation Toxicity: Rat inhalation LC_{50} (4 h) > 5 mg/L (slight hazard, in accordance with OECD 403 test method).

11.2 Irritation/Corrosion

Skin Irritation: Rabbit skin irritation test (OECD 404) shows no irritation; Eye Irritation: Rabbit eye irritation test (OECD 405) shows slight irritation, which is reversible.

11.3 Other Toxicological Properties

No carcinogenicity (OECD 451/452), mutagenicity (OECD 471/473), or reproductive toxicity (OECD 414/415); prolonged or repeated exposure may cause slight discomfort of respiratory mucosa, no organ-specific toxicity.

12. Ecological Information

12.1 Ecotoxicity

- Fish Toxicity: Guppy LC_{50} = 680 mg/L (96 h, in accordance with OECD 203).
- Daphnia Toxicity: Daphnia magna EC_{50} = 720 mg/L (48 h, in accordance with OECD 202).
- Algae Toxicity: Chlorella vulgaris EC_{50} = 2700 mg/L (18 d, in accordance with OECD 201).

12.2 Persistence and Degradability

Not easily biodegradable in the natural environment, but can be degraded by water dilution and soil adsorption, no bioaccumulation (BCF < 10).

12.3 Environmental Compliance

Complies with the EU Water Framework Directive (2000/60/EC), not a priority pollutant; in case of environmental spill, reporting obligations shall be fulfilled in accordance with the EU Environmental Liability Directive (2004/35/EC).

13. Disposal Considerations

13.1 Waste Chemicals

Prioritize recycling and reuse; if recycling is not feasible, dispose in accordance with EU WEEE/RoHS Directive and Waste Framework Directive (2008/98/EC), classified as "non-hazardous industrial waste" (Code: 17 05 04). Incineration disposal must be equipped with exhaust gas treatment equipment (to remove sulfur oxides), and direct discharge is strictly prohibited.

13.2 Contaminated Packaging

Dispose in accordance with EU Packaging and Packaging Waste Directive (94/62/EC). It can be recycled after thorough cleaning, or disposed of by institutions holding EU EPR qualification to ensure no residues.

13.3 Disposal Precautions

Confirm local environmental protection regulations before disposal. Disposal personnel shall wear personal protective equipment to avoid contaminating water bodies, soil, and atmosphere.

14. Transport Information

Transport Parameter	EU/International Standard
UN Number	None (non-hazardous goods, in accordance with ADR/RID/IMDG/ICAO standards)
UN Proper Shipping Name	Magnesium sulfate, anhydrous (non-hazardous goods)
ADR/RID Transport Category	None
Packing Group	None
Marine Pollutant	No (in accordance with IMDG Code)

14.1 Transport Precautions

Transport vehicles must be clean and dry. Packages (PE/PP bags + corrugated cartons) must be tightly sealed to prevent moisture, damage, and leakage; avoid mixed transport with oxidants, strong acids, and food (in accordance with EC 1272/2008). Keep away from heat, rain, and direct sunlight during transport, comply with EU ADR/RID transport regulations, and equip with emergency spill treatment tools.

15. Regulatory Information

EU Regulations

- REACH Regulation (EC) No 1907/2006: Registered, compliant with SDS preparation requirements of Annex I, no restricted substances in Annex XVII.
- CLP Regulation (EC) No 1272/2008: GHS classification and labeling comply with the latest revised version.
- OSHA Regulation: Occupational exposure control complies with EU Occupational Health and Safety

Directive (89/391/EEC).

- Food Contact: This product is not a food additive and is prohibited for use in food contact materials (in accordance with EC 178/2002).

Other Regulations

HS Code: 28332100; RTECS No.: OM4500000; Complies with the 8th revised edition of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

16. Other Information

- Preparation Note: This SDS is prepared in accordance with Annex I of REACH Regulation, CLP Regulation, and EU SDS common format. Data are derived from OECD test reports and authoritative chemical databases to ensure compliant use within the EU.
- Disclaimer: This SDS is prepared based on existing data for reference only. Actual use must be combined with specific working conditions and local regulations of EU member states. It will be revised promptly when updated data is obtained.
- Revision Plan: Revised every 2 years, or immediately when regulations are updated or data is supplemented.
- Contact Information: Laizhou Baiyexin Chemical Co., Ltd., Phone: +86 19653602589, Address: Yinhai Industrial Park, Tushan Town, Laizhou City, Yantai City, Shandong Province, China.