

Material Safety Data Sheet (MSDS)

Product Name: Magnesium Oxide (0.50-0.70 gm/ml)

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: Magnesium Oxide (MgO)
- Synonyms: Magnesia, Magnesia powder
- Use: Industrial raw material, refractory, filler, antacid precursor (as applicable to customer)

2. Composition / Information on Ingredients

- Substance: Magnesium oxide (MgO)
- CAS no.: 1309-48-4
- Purity: Typical commercial grades vary; state grade on label.
- Typical physical form: White to off-white powder. Bulk density (apparent): 0.50–0.70 g/mL (as provided).

3. Hazard Identification

- Classification (GHS): Not classified as a hazardous substance for transport.

- Main hazards: Respiratory irritation from dust; possible mechanical eye irritation. Not flammable.
- Warning statements: Avoid generation and inhalation of dust. Use dust control and PPE.

4. First Aid Measures

- Inhalation: Remove person to fresh air. If breathing difficult, give oxygen and seek medical attention. If coughing persists, seek medical advice.
- Eye contact: Flush immediately with water for at least 15 minutes. Remove contact lenses if present and easy to do — continue rinsing. Seek medical attention if irritation persists.
- Skin contact: Remove contaminated clothing. Wash skin with soap and plenty of water. If irritation develops, seek medical attention.
- Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention if discomfort or symptoms occur.

5. Firefighting Measures

- Suitable extinguishing media: Not combustible. Use media appropriate for surrounding fire (water spray, foam, dry chemical, CO₂).
- Specific hazards: At extremely high temperatures (well above typical use), decomposition or generation of fumes may occur.
- Protective equipment: Firefighters should wear self-contained breathing apparatus (SCBA) and full protective gear.

6. Accidental Release Measures

- Personal precautions: Avoid inhalation of dust. Use appropriate PPE (see Section 8). Avoid dust generation.
- Environmental precautions: Prevent large quantities entering drains or waterways.
- Cleanup: Vacuum (HEPA) or sweep up carefully to minimize dust; place in suitable labeled containers for disposal or recovery. Avoid dry sweeping when possible—use wet methods or local exhaust ventilation.

7. Handling and Storage

- Handling: Avoid producing and breathing dust. Use local exhaust ventilation. Do not eat, drink or smoke where material is handled. Wash hands after handling.

- Storage: Store in a dry, well-ventilated place. Keep container tightly closed. Protect from moisture to avoid caking.

8. Exposure Controls / Personal Protection

- Occupational exposure limits (example values — check local regulations): many jurisdictions list 10 mg/m³ (inhalable) and 4 mg/m³ (respirable) as typical OELs for MgO dust/fume; respirable fraction limits are lower. (Refer to local regulations for exact values.)
- Engineering controls: Use local exhaust ventilation or other controls to minimize airborne dust.
- PPE:
 - Respiratory protection: Where dust exceeds exposure limits use an appropriate particulate respirator (e.g., N95/P2 or higher depending on concentration and local regulation).
 - Eye protection: Safety goggles.
 - Skin protection: Gloves and protective clothing to prevent prolonged skin contact.
 - Hygiene: Wash hands and exposed skin after handling.

9. Physical and Chemical Properties

- Appearance: White to off-white powder
- Odour: Odourless
- Bulk density (apparent): 0.50–0.70 g/mL (as provided)
- pH: Approx. neutral to slightly basic in water (depends on grade and surface hydration)
- Melting point / boiling point: MgO has a very high melting point (~2852 °C).
- Solubility: Practically insoluble in water (very slightly soluble, resulting in slightly alkaline suspension).
- Flash point: Not applicable — not flammable.

10. Stability and Reactivity

- Chemical stability: Stable under recommended storage conditions.
- Conditions to avoid: Avoid creating dust clouds. Extreme heat may cause decomposition or fume formation.

- Incompatible materials: Strong acids (react slowly), strong oxidizers (no major reactivity expected under normal conditions).
- Hazardous decomposition products: At very high temperatures, may form fumes/oxides.

11. Toxicological Information

- Acute toxicity: Low acute oral toxicity for typical commercial grades.
- Inhalation: Inhalation of respirable dust may cause respiratory tract irritation; prolonged exposure to high concentrations of respirable dust may lead to lung effects.
- Skin/eye: May cause mechanical irritation to eyes; skin irritation not expected under normal handling.
- Chronic effects: Repeated inhalation of respirable dust may contribute to lung disease; follow occupational exposure limits and control measures.
- Carcinogenicity: Not classified as carcinogenic by major agencies for MgO bulk dust (confirm with local regulatory lists for nanomaterials or special forms).

12. Ecological Information

- Ecotoxicity: Low ecotoxicity expected; insoluble in water so mobility is limited.
- Persistence / degradability: Not biodegradable (inorganic).
- Bioaccumulation: Not expected to bioaccumulate.
- Disposal considerations: Avoid release to the environment; follow local regulations for disposal.

13. Disposal Considerations

- Waste disposal: Dispose of in accordance with local/regional/national regulations. If uncontaminated, may be disposed of as inert solid waste in permitted facilities.
- Contaminated packaging: Empty containers may retain product residue; handle accordingly and dispose per regulation.

14. Transport Information

Summary: Magnesium oxide (bulk powder) is *generally NOT classified as a dangerous good for transport* under major modal regulations (ADR, RID, IMDG, IATA, DOT) when shipped as the solid inorganic compound in typical packaging. This is the position taken in multiple current Safety Data Sheets and supplier guidance; however, always verify against the specific jurisdictional/regulatory requirements that apply to your shipment (some special forms — e.g., very fine nanopowders, or contaminated/mixtures — may require additional consideration).

Detailed modal breakdown and guidance:

- **UN Number:** Not assigned / Not regulated for transport (no UN number).
- **UN Proper Shipping Name:** Not assigned / Not regulated.
- **Transport hazard class(es):** Not classified. No hazard label required under ADR/IMDG/IATA for standard MgO powders.
- **Packing group:** Not applicable.
- **Environmental hazards:** Not considered a marine pollutant.
- **Special precautions for user / carriage:**
 - Although not regulated as a dangerous good, transport should minimize dust release: secure containers, avoid crushing or opening during transit, and use appropriate packaging (sealed, moisture-resistant bulk bags, drums, or sacks).
 - Label containers with product identification, handling instructions (e.g., “Avoid dust formation”), and emergency contact.
 - For bulk transport by road/rail/sea/air: comply with carrier requirements for particulate inorganic solids; declare any additional hazards if present (e.g., if product is contaminated with hazardous materials).
- **Transport by road (ADR/RID):** Not subject to ADR/RID dangerous goods regulations for typical grades. Use normal precautions for powders and dusts.
- **Transport by sea (IMDG):** Not regulated under IMDG for standard MgO; not marine pollutant. However, follow packaging and stowage best practices to prevent dust release.
- **Transport by air (IATA/ICAO):** Not regulated under IATA Dangerous Goods Regulations for typical grades. Airlines may have their own cargo acceptance rules for powders—check with the carrier.
- **Transport by US DOT / TDG (Canada):** Not regulated as hazardous material for routine shipments. Domestic carriers may require standard shipping paperwork and labeling.

15. Regulatory Information

- Follow national and local regulations (e.g., hazardous substances acts, chemical inventories). MgO is typically listed on major chemical inventories (e.g., TSCA, EINECS) — consult the appropriate inventory for your market/grade.
- Hazard classification: Follow local GHS/CLP guidance — typically not classified for transport; however, workplace exposure and labeling for dust control and PPE should be applied.

16. Other Information

- Disclaimer: The information in this MSDS is believed to be correct as of the Revision Date above but is provided without warranty. Users must verify suitability for their own use and comply with local regulations. This MSDS is intended for occupational/professional use only.
- **MSDS Generate Date:** 20-05-2017
- **Revision Date:** 30-12-2024
- **Website:** www.rawpharmabiz.com
- MSDS are based on the manufacturer's provided information.