High Purity Magnesium Oxide

Electronic/Pharma Grade · **CAS 1309-48-4** · **Grade M411**

1. PRODUCT DESCRIPTION

Synthesized via multi-stage purification—starting with high-purity magnesium hydroxide precipitation, followed by thermal decomposition at 1200-1500°C in controlled atmospheres—this grade achieves semiconductor-level cleanliness. Heavy metal content (Pb, As, Cd, Hg) is suppressed below 10 ppm total, meeting USP/EP pharmaceutical standards. In electronics, it serves as a substrate for microwave dielectric resonators (low loss tangent, high Q factor) and as an insulating layer in heating elements (thermal conductivity 40-60 W/m·K at 1000°C). For optics, its high transparency in UV-visible spectrum makes it suitable for crucibles melting optical glasses. Pharmaceutical applications include antacid tablet fillers and magnesium supplement precursors.

2. TYPICAL PROPERTIES

PROPERTY	TYPICAL VALUE
MgO Content	≥ 99.9%
SiO2	≤ 0.01%
CaO	≤ 0.01%
Fe2O3	≤ 0.005%
Particle Size (D50)	2-5 μm

Typical values, not a purchase specification. A batch-specific Certificate of Analysis is issued for every shipment. Confirm acceptance limits for your application with us before ordering.

3. MATERIAL CONSTANTS

PROPERTY	VALUE	SOURCE
True density	3.58 g/cm³	Literature value
Melting point	2,852 °C	Literature value
Mohs hardness	5.5	Literature value
Refractive index	1.736	Literature value

4. TYPICAL APPLICATIONS AND KEY PROPERTIES

- 99.9%+ Purity (SiO_2 <0.01%, CaO <0.01%, Fe_2O_3 <0.005%)
- Heavy Metals <10 ppm total (meets USP/EP pharmaceutical standards)
- High Thermal Conductivity (40-60 W/m·K) for heat dissipation
- Particle Size Control (D50 2-5μm) for uniform sintering

5. HANDLING NOTES

- **Dispersion.** Dry-blend or side-feed depending on loading; avoid moisture pickup before compounding.
- **Storage.** MgO is hygroscopic — reseal opened bags and use within the recommended period.
- **Dosage.** Confirm the addition level against your compound formulation; over-dosage can scorch or affect cure.
- **Safety.** Dust mask and eye protection when handling powder. See the SDS for full information.

6. PACKAGING AND STORAGE

ITEM	DETAIL
Packaging	25 kg PP woven bag with PE liner; larger packaging on request
Storage	Cool, dry, sealed — keep away from acids and moisture
Shelf life	24 months in unopened original packaging
Loading port	Tianjin (Xingang) / Qingdao

7. REGULATORY STATUS

ITEM	STATUS
REACH SVHC	Base material screened — no SVHC above 0.1 % w/w (SGS SHAEC2008188708). Treated grades can be tested on request.
RoHS (EU) 2015/863	Base material compliant (SGS NGBEC25004227002 / CZXEC1900477942). Treated grades on request.
Quality system	ISO 9001:2015 — certificate 21726Q00302R001, valid to 2029-04-15