Industrial Magnesium Oxide

Basic Raw Materials · **CAS 1309-48-4** · **Grade M410 / M410-1 / M411 / M411-1**

1. PRODUCT DESCRIPTION

Produced from premium-grade magnesite through controlled light calcination at 700-1000°C, our Industrial Magnesium Oxide combines high chemical reactivity with cost-effectiveness. The optimized particle size distribution (200-325 mesh) ensures rapid dissolution in acidic media, making it ideal for flue gas desulfurization (FGD) systems where it achieves 95-98% SO_2 removal efficiency—superior to traditional limestone methods. In chemical synthesis, it serves as a key precursor for magnesium sulfate ($MgSO_4·7H_2O$), magnesium nitrate, and magnesium chloride. When mixed with $MgCl_2$ solution, it forms high-strength magnesia cement (Sorel cement) used in lightweight construction panels and flooring compounds.

2. TYPICAL PROPERTIES

Columns: **M410 · M410-1 · M411 · M411-1** — values are per grade.

PROPERTY	TYPICAL VALUE
Appearance	White powder
MgO Content, % min	97.5 / 99 / 97.5 / 99
Ca, % max	0.1 / 0.05 / 0.1 / 0.05
Fe, % max	0.005 / 0.0001 / 0.005 / 0.001
Chloride (Cl^-), % max	0.5 / 0.1 / 0.5 / 0.1
SiO_2, % max	0.01
Particle Size D50, μm	40–60 / 40–60 / 4–8 / 3–7
Bulk Density, g/cm³ min	0.6 / 0.6 / 0.3 / 0.3
K, % max	0.01 / 0.001 / 0.01 / 0.01
Na, % max	0.01
Whiteness, min	95
Loss on Ignition, % max	1.8 / 0.5 / 2.0 / 0.5
Al_2O_3, % max	0.01
As, ppm max	5 / 1 / 5 / 1
Pb, ppm max	5 / 2 / 5 / 2

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

- 95-98% Desulfurization Efficiency (vs 90-95% for $CaCO_3$)
- Fast Acid Neutralization Kinetics (120-160s citric acid reactivity)
- Rich in China (80% global reserves) ensuring stable supply
- No Equipment Scaling (pH 6.0-6.5 operation prevents corrosion)

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