MgO for Friction Materials

Automotive · **CAS 1309-48-4** · **Grade M411**

1. PRODUCT DESCRIPTION

Engineered for non-asbestos organic (NAO) and semi-metallic brake formulations, this grade's unique crystalline structure (cubic periclase with minimal lattice defects) provides exceptional thermal stability. During braking cycles reaching 400-600°C, it participates in forming a protective tribofilm—a thin layer of oxidized compounds that stabilizes the friction coefficient (μ) between 0.35-0.45 across temperature ranges. Its Mohs hardness (6.0) is carefully calibrated: hard enough to resist abrasive wear but soft enough to prevent rotor scoring. In clutch facings, it acts as a pH buffer, neutralizing acidic phenolic resin decomposition products that would otherwise accelerate material degradation.

2. TYPICAL PROPERTIES

PROPERTY	TYPICAL VALUE
MgO Content	≥ 96.0%
Particle Size	325 mesh
CaO	≤ 1.0%
Hardness (Mohs)	6.0

> **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

- Stable Friction Coefficient (μ=0.35-0.45) across 20-600°C range
- Reduces Brake Fade (maintains stopping power after 10+ hard stops)
- 20-30% Wear Reduction (extends pad life to 50,000+ km)
- Low Noise Generation (dampens resonance frequencies 1-8 kHz)

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