Mg(OH)2 for Fire Retardant Coatings

Coatings · **CAS 1309-42-8** · **Grade HD-9**

1. PRODUCT DESCRIPTION

Engineered for water-based and solvent-based intumescent fireproofing coatings protecting steel structures (I-beams, columns) and wood substrates. During fire exposure (600-800°C), it decomposes endothermically, releasing water vapor that expands the coating into a protective char layer (expansion ratio 20-30x original thickness). The char's thermal conductivity (<0.1 W/m·K) insulates the substrate, maintaining steel temperature below 550°C (critical failure point) for 120+ minutes. Its alkaline pH (9-10) neutralizes acidic char from APP/MEL systems, preventing coating delamination. Ultra-fine grinding (1250 mesh, D50 <5µm) ensures smooth film formation without settling. Weathering resistance (ASTM D4214) exceeds 10 years with <20% gloss loss.

2. TYPICAL PROPERTIES

PROPERTY	TYPICAL VALUE
Mg(OH)2 Content	≥ 96.0%
Fineness	1250 mesh
Oil Absorption	Medium
Whiteness	≥ 95%

> **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	2.36 g/cm³	Literature value
Decomposition onset	330–340 °C	TGA (ISO 11358)
Heat absorption	≈ 1,450 J/g	DSC (ISO 11357)
Water released	≈ 31 wt%	From LOI

4. TYPICAL APPLICATIONS AND KEY PROPERTIES

- 2-Hour Fire Rating (maintains steel <550°C for 120+ min)
- High Char Expansion (20-30x original thickness)
- Ultra-fine 1250 Mesh (D50 <5µm for smooth film finish)
- 10-Year Outdoor Durability (ASTM D4214: <20% gloss loss)

5. HANDLING NOTES

- **Drying.** Dry to ≤ 0.2 % before processing; ≤ 0.15 % for film grades. 105 °C for 2–4 h, do not exceed 150 °C.
- **Loading.** Flame-retardant performance is reached at high loading (typically 55–65 wt% in EVA/PE); confirm with your own compound trials.
- **Temperature.** Keep the melt below 200 °C — decomposition begins above 300 °C.
- **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