Modified Mg(OH)2 for Flame Retardant PE

Flame Retardants · **CAS 1309-42-8** · **Grade HD-9021 / HD-0822 / H36-7**

1. PRODUCT DESCRIPTION

Surface-functionalized with vinyl-silane (e.g., A-171) and stearic acid to transform the hydrophilic $Mg(OH)_2$ surface into organophilic, this grade achieves unprecedented compatibility with non-polar polyethylene. The silane grafting reduces interfacial tension, allowing 60-65 wt% loading (vs 45-50 wt% for untreated grades) while maintaining melt flow index >0.5 g/10min at 190°C/2.16 kg—critical for wire extrusion. Impact strength retention exceeds 70% (vs 50% for untreated), enabling production of tough, flame-resistant cable jackets. Oil absorption drops to <35 ml/100g (vs >60 ml/100g untreated), reducing compound viscosity and lowering processing torque by 20-30%. UL94 V-0 is achieved at 1.6mm thickness (vs 3.0mm for untreated).

2. TYPICAL PROPERTIES

Columns: **HD-9021 · HD-0822 · H36-7** — values are per grade.

PROPERTY	TYPICAL VALUE
Base	Synthetic / Synthetic / Natural brucite
Process	Precipitated, ground, surface-treated / Precipitated, ground, surface-treated / Ore ground
MDH content, % min	99 / 99 / –
MgO content, % min	– / – / 60
CaO, % max	0.1 / 0.1 / 3
SiO_2, % max	0.1 / 0.1 / 7
Fe_2O_3, % max	0.005 / 0.005 / 2.0
Moisture, % max	0.5 / 0.5 / 2.0
Loss on ignition, %	≈30.0
Whiteness (R457), min	96 / 96 / 88
Particle size D50, μm	1–2 / 1–2 / 3–3.8
Decomposition, °C	340–450
Max service temperature, °C	300
Distinguishing feature	Water resistance, high strength / Dispersion, high elongation at break / Natural mineral, cost-efficient

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

- 60-65 wt% Loading (vs 45-50% untreated) without brittleness
- Impact Retention >70% (maintains toughness for cable applications)
- Low Oil Absorption (<35 ml/100g) improves processability
- UL94 V-0 at 1.6mm (enables thinner, lighter cable jackets)

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