ZHONGYAOTECH
XINGTAI ZHONGYAO CHEMICAL

PRODUCT BROCHURE
2026 / 01

HALOGEN-FREE FLAME RETARDANT

Magnesium Hydroxide.

Decomposes at 340–490 °C releasing 31 wt% water — flame suppression without halogen acids or antimony.

GRADE	CAS	PURITY	D50
MDH-FR	1309-42-8	≥ 99.0 %	1.5–2.0 µm

Halogen systems work.
They also release **corrosive acid** and **dense smoke**.
$Mg(OH)_2$ does it with **water and heat**.

340–490°C

DECOMPOSITION

Above PE/PP/EVA processing temperatures, so it survives extrusion.

31 wt%

WATER RELEASED

Endothermic decomposition absorbing 1,450 J/g.

<100

SMOKE DENSITY

Against more than 400 for a halogenated system.

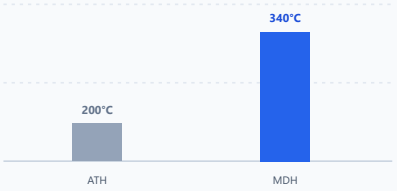
01 — MECHANISM

It works above the processing temperature.

$Mg(OH)_2$ decomposes endothermically into magnesium oxide and water vapour. Because the reaction only begins around 340 °C, a compound can be extruded at 180–220 °C with the filler still chemically intact.

In a fire the same reaction becomes the mechanism: released water dilutes combustible gases, the endotherm cools the surface, and the residual MgO forms a ceramic-like char.

Compare. Aluminium hydroxide decomposes at 180–220 °C — inside the processing window of PE and PP. ATH remains a valid lower-cost choice for PVC.



THERMOGRAVIMETRIC ONSET — INDICATIVE

PROCESS

Processing → Ignition → Char

Decomposition onset — Thermogravimetric onset — indicative

DECOMPOSITION	HEAT ABSORPTION	WORKS IN PE/PP AT 200 °C
340–490 °C	**1,450 J/g**	**Yes**
vs 180–220 °C	vs 1,050 J/g	vs No

02 — SPECIFICATION

Controlled batch to batch.

Parameter	Standard value	Method
Mg(OH)2 Content	**≥ 99.0%**	Batch COA
Whiteness	**≥ 97%**	Batch COA
Particle Size (D50)	**1.5-2.0 µm (0.8-8 µm on request)**	Batch COA
Specific Surface Area (BET)	**6-12 m^2/g**	Batch COA
Loss on Ignition (1000°C)	**30.5-31.5%**	Batch COA
Moisture	**≤ 0.3%**	Batch COA
Fe_2O_3	**≤ 0.02%**	Batch COA
Cl^-	**≤ 0.01%**	Batch COA
CaO	**≤ 0.15%**	Batch COA
SiO_2	**≤ 0.05%**	Batch COA
Residue on 325 mesh	**≤ 0.05%**	Batch COA
Bulk Density	**0.35-0.55 g/cm^3**	Batch COA
pH (10% suspension)	**9.5-10.5**	Batch COA
Surface Treatment	**Untreated / Silane / Stearic acid / Titanate**	Batch COA

Customisation

D50 from 0.8 to 8 µm. Surface treatment matched to the polymer: silane for EVA/PE/LSZH, stearic acid for PVC and PP, titanate above 60 wt% loading.

SUPPLY

Packaging	**25 / 1 000 kg**
Minimum order	**1 t**
Lead time	**3–7 days**
Grade code	**Magnesium-Hydroxide**

CAS 1309-42-8 · Batch COA with every shipment. TDS and SDS on request.

INCOMING

Ore assay

Every lot screened for Fe, Ca, Si before calcination.

IN PROCESS

Activity + LOI

Sampled during production against the batch target.

BEFORE SHIPMENT

Full COA

Complete release testing, third-party reports on request.

03 — APPLICATIONS

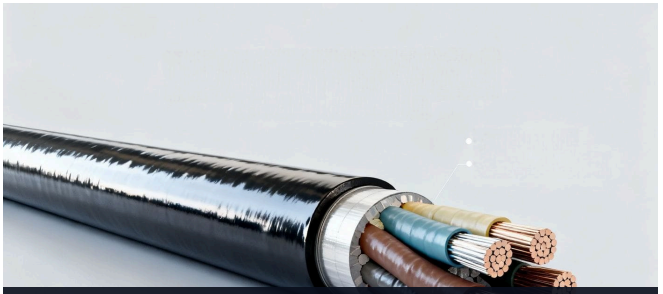
Where it is specified.



01

EVA encapsulant

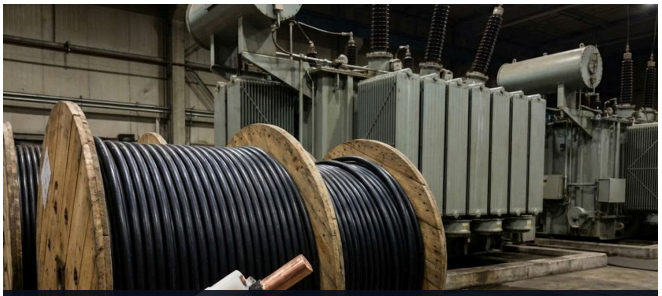
55–65 wt% · >90 % transmittance



02

LSZH cable jacket

IEC 60332 / 60754



03

Flexible PVC

40–60 wt% smoke suppressant



04

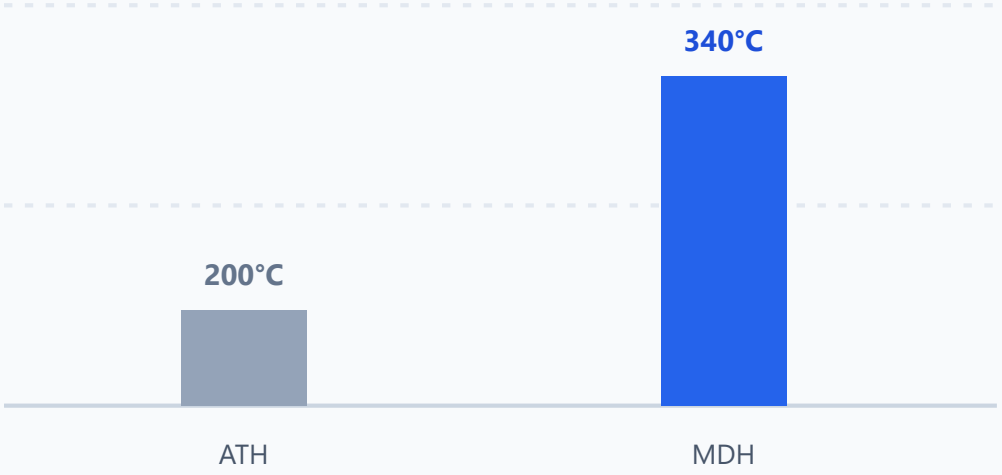
Intumescent coatings

char formation

Dosage and loading figures are starting points for formulation trials. Final performance depends on the complete compound and test conditions.

04 — PERFORMANCE

Loading against performance.



THERMOGRAVIMETRIC ONSET — INDICATIVE

Property	$Mg(OH)_2$	ATH
Decomposition	**340–490 °C**	180–220 °C
Heat absorption	**1,450 J/g**	1,050 J/g
Works in PE/PP at 200 °C	**Yes**	No
Smoke density	**< 100**	100–150

PACKAGING

25 kg PE-lined PP woven bag, palletised on request.

1 000 kg jumbo bag for bulk compounding lines.

LOGISTICS

20' FCL load	**20–24 t**
Port of loading	**Tianjin / Qingdao**
Incoterms	**FOB / CIF / CFR**
HS code	**2519.90**

05 — SUPPLY

Batch traceable. Documented every time.

Every shipment carries a batch-specific COA. TDS, SDS and REACH statements are issued on request. Production is ISO 9001:2015 certified.

50,000 t
ANNUAL CAPACITY

50+
EXPORT COUNTRIES

1 t
MINIMUM ORDER

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Specifications are typical values and do not constitute a batch release certificate. Confirm acceptance criteria against the batch COA and the TDS in force at the time of order.

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