

Magnesium Phosphate Cementitious Materials

Product Description

A new type of inorganic repair material. It features high early strength (hour-level), high long-term strength, high interfacial bonding strength with steel and concrete, excellent volume stability, heat resistance, wear resistance, freeze-thaw resistance, and low-temperature workability.

Application Scenarios

Ultra-Rapid Repair & Reinforcement

Applied to airport runways, concrete pavements, high-speed railway sleeper emergency repairs, and suitable for high-altitude and cold regions.

Low-Temperature Adaptability

Can harden normally without special curing at temperatures as low as -20°C or even lower, significantly outperforming ordinary cement which barely hardens under the same conditions. It is an ideal choice for winter emergency repairs and construction in cold regions.

Pre-Placed Coarse Aggregate Grouting

Utilizes excellent fluidity and bonding properties for road expansion joints, airport runways, and pavement pothole repairs.

Rebar Anchoring

Leverages MPC's bonding performance, early strength, rapid hardening, and high strength for rebar anchoring, outperforming traditional cement materials and shortening construction periods.

Corrosion Protection

Used for corrosion protection (high-temperature) of chemical steel heat pipelines, with a tensile bonding strength to steel $\geq 1.0\text{MPa}$. High temperature resistance and superior anti-corrosion performance compared to epoxy resin coatings, enabling integrated corrosion protection, fire resistance, and thermal insulation for oil storage tanks.



Airport Runway/Apron Rapid Repair Bridge Expansion Joint/Cold Joint Rapid Repair Rapid Road Repair Rapid Road Repair in Cold Regions



Concrete Structure Rebar Anchoring Equipment Foundation Anchoring Pipeline Corrosion Protection Low-Temperature Construction

Key Technical Points		
Material Application Forms Can be used as MPC paste, mortar, or concrete, depending on the specific application site.	Setting Time Control For large volumes, control above 25 minutes; for small volumes, 10-20 minutes is recommended.	
Mixing & Forming Methods Manual mixing, hand-held mixers, or mechanical mixers are all applicable, depending on the construction site and material quantity.	Pouring Paste and mortar can be directly poured and filled; concrete requires vibration assistance.	
Curing Avoid rain exposure before hardening; no curing is required after hardening.	Strength Testing Measured by rebound method after hardening; typically exceeds 25MPa in 1 hour. Strength development is related to ambient temperature and pouring volume.	
Commissioning Can be put into use once strength requirements are met, usually within 0.5-3 hours after construction.		

Main Parameters		
Item	Test Standard	Parameter
Initial Setting Time (20°C)	GB/T 1346-2011	5-40min
Final Setting Time (20°C)	GB/T 1346-2011	5-45min
Fluidity	GB/T 2419-2005	200-260mm
Compressive Strength	JC/T 2857-2024	
1.5 hours		30.0 MPa
1 day		55.0 MPa
7 days		70.0 MPa
28 days		85.0 MPa
Flexural Strength	JC/T 2857-2024	
1.5 hours		6.0 MPa
1 day		7.0 MPa
7 days		8.0 MPa
28 days		10.0 MPa
Abrasion Resistance	GB/T 50081-2019	1.3 kg/m²
Indirect Tensile Strength	JC/T 2537-2019	3.0 MPa
Restrained Shrinkage Cracking Test (Ring Method, 1d)	ASTM C 1581	No cracking
Drying Shrinkage Test of Cement Mortar (After 90 Days)	JC/T 603-2004	-0.040%
Bond Strength with Concrete	JC/T 2537-2019	3.5 MPa