

Cementitious Waterproofing Coating – Waterproof Breathable Membrane for Concrete Foundations

Cementitious Waterproofing Coating

Product Overview



Cement based permeable crystalline waterproof coating is a gray powder material made of ordinary Portland cement mixed with active chemicals. The waterproofing mechanism of this series of coatings is mainly based on porosity. Under the action of water, the active chemical substances in the coating use water as a carrier. As water penetrates into the structural pores, the active chemicals migrate inward and react to form insoluble crystals such as ettringite. Meanwhile, the active chemicals undergo hydration reaction with unhydrated cement particles,promoting cement hydration and forming cement hydration crystals. A large number of crystals fill and seal the pores, preventing water from entering the concrete, thereby achieving the waterproofing purpose.

Due to its good adhesion, this series of coatings can be applied on smooth or rough surfaces, negative or positive side surfaces, dry or damp substrates, and even under water treatment conditions, without affecting the application result.

Applications

Widely used for waterproofing of tunnels, dams, reservoirs, power stations, nuclear power plants, cooling towers, subways, overpasses, bridges, diaphragm walls, airport runways, pile heads and pile foundations, wastewater treatment tanks, water storage tanks, basements of industrial and commercial buildings, roofs, bathrooms, as well as for repairing and sealing defects in all types of concrete structures.

Application Method

- Clean debris and loose mortar from the substrate surface. Repair any severely uneven concrete areas.
- Remove oil stains and debris from the surface of the cement-based concrete structure, then rinse with clean water. Apply the waterproofing material on the damp substrate.
- If severe leakage is found on the substrate, first apply a plugging material, then use this product to ensure project quality.
- Water-to-powder ratio: 0.3–0.4:1. Application rate: 1.4–1.7 kg/m² . Standard thickness: 1.0 mm (±0.05 mm).

Roller application method: Apply the material evenly onto the prepared substrate using a roller brush at a rate of 1.4–1.7 kg/m² .

Dry-shake method: Apply immediately after the concrete has been poured,compacted, and leveled. Sprinkle the material evenly onto the concrete surface at the specified rate, then compact and trowel promptly. After final set, inspect for any poorly applied areas and repair promptly. In direct sunlight, mist with water for curing. Ensure even sprinkling – do not skimp on material.

Performance

Cement based permeable crystalline waterproof coating complies with GB18445-2012 standard.

No.	Test Item		Performance Index
1	Appearance≤		Uniform, no lumps
2	Moisture content（%） ≤		1.5
3	Fineness (residue on 0.63 mm sieve)（% ） ≤		5
4	Chloride ion content（%） ≤		0.10
5	Workability	After mixing with water	Smooth troweling
		20 min	Smooth troweling
6	Flexural strength (MPa), 28d ≥		2.8
7	Compressive strength (MPa), 28d ≥		15.0
8	Bond strength on damp substrate (MPa) , 28d ≥		1.0
9	Mortar impermeability	Impermeability pressure of coated mortar a (MPa) ,28d	Report actual value
		Impermeability pressure ratio (with coating) (%),28d ≥	250
		Impermeability pressure of mortar after coating removal a (MPa) ,28d	Report actual value
		Impermeability pressure ratio (after coating removal) (%),28d ≥	175
10	Concrete impermeability	Impermeability pressure of coated concrete a (MPa) ,28d	Report actual value
		Impermeability pressure ratio (with coating)(%),28d ≥	250
		Impermeability pressure of concrete after coating removal a (MPa) ,28d	Report actual value
		Impermeability pressure ratio (after coating removal) (%),28d ≥	175
		Second impermeability pressure of coated concrete a (MPa), 56d	0.8

a The 28d impermeability pressure of the reference mortar and reference concrete shall be 0.4 $^{+0.0}_{-0.1}$ MPa, and shall be reported in the product quality test report.