

Manta WS101

Deep-Penetrating Silane Water-Repellent Emulsion

Description

Manta WS101 is a highly concentrated penetrating silane emulsion. Engineered with a small-molecule silane formulation, it is designed to penetrate deeply (several millimeters) into the dense concrete matrix.

Unlike traditional film-forming coatings that seal the surface, WS101 creates a truly breathable, 100% vapor-permeable hydrophobic barrier. It allows trapped internal moisture to escape freely while aggressively blocking external liquid water ingress, ensuring the long-term structural integrity of the mineral substrate.

Typical Physical Properties

Manta code:	WS101
Chemical Name:	Penetrating Silane-Based Emulsion Deep-Penetrating Silane Emulsion
Appearance:	Milky, white liquid
Active Solid Content(%)	43 ~ 58

Note on Active Content: The high active solid content offers excellent cost-efficiency and logistics advantages. For optimal deep-penetration, it must be diluted with water prior to application.

Features

- **Extreme Durability:** Provides highly reliable, long-term protection, significantly extending the service life of concrete structures for a decade or more.
- **Chloride & Salt Defense:** Substantially reduces capillary water absorption, actively preventing damage from de-icing salts and chloride ion penetration.
- **Freeze-Thaw Resistance:** Mitigates internal structural damage (spalling and scaling) caused by repeated freeze-thaw cycles.
- **Aesthetic Retention:** Does not alter the original appearance or texture of the structure. Effectively prevents surface darkening and biological growth (mildew/algae) caused by moisture and acid rain.

Applications

Widely specified to protect and extend the service life of porous mineral substrates, including:

1. Concrete bridge barriers, retaining walls, and piers;
2. Industrial concrete floors and exterior building renders;
3. Cementitious mortars and fair-faced architectural concrete;

Application Guidelines & Dilution Logic (CRITICAL)

Step 1: On-Site Dilution (Mandatory for Penetration)

Manta WS101 is supplied as a high-solid concentrate. To achieve the specified deep penetration (several millimeters) into dense mineral substrates, the emulsion must be diluted with clean, potable water prior to application.

- Recommended Ratio: Generally 1:4 to 1:9 (WS101 : Water by weight), depending on substrate porosity and required penetration depth.
- Technical Logic: Dilution significantly lowers the viscosity and slows the initial cross-linking reaction rate. This delay allows the small silane molecules to be drawn much deeper into the capillary network via capillary suction before curing occurs.

Step 2: Surface Preparation

Repair any structural defects in the concrete. Thoroughly clean the surface to remove dirt, laitance, standing water, and oil/grease. Allow the surface to dry for at least 3 days. The substrate must be visibly dry and free of all contaminants prior to impregnation.

Step 3: Application Conditions & Test Patch

- Curing Age: Apply to newly cast concrete after 28 days of curing, and to repaired areas after 14 days.
- Weather: Do not apply if ambient temperatures are below 5°C or above 40°C, or during high winds/rain.
- Test Patch: It is highly recommended to conduct a small test patch (approx. 5 m²) to verify the optimal dilution ratio, exact coverage rate, and penetration efficacy.

Step 4: Application Technique & Dosage

- Method: Apply the diluted solution using low-pressure spraying equipment, a roller, or a brush.
- Dosage: Apply at a coverage rate of 200–250 g/m² of the diluted solution per coat.
- Coats: Two coats are strictly recommended. When spraying, apply continuously until the substrate is fully saturated (flooded). Apply the second coat "wet-on-wet" or within 2–4 hours, once the first coat appears visibly dry.

Protective Effects

- ◆ Provides long-lasting protection for up to 5 years.
- ◆ Significantly reduces the capillary water absorption of the concrete.
- ◆ Prevents damage from de-icing salts and chloride ion penetration.
- ◆ Mitigates structural damage caused by repeated freeze-thaw cycles.
- ◆ Enhances overall resistance to weathering and environmental degradation.
- ◆ Substantially increases the durability and service life of the concrete structure.
- ◆ Renders the concrete highly water-repellent without altering its original appearance.

Packaging

In 200kg drum and 1000kg IBC

Safety and Storage

Keep in a cool and dry place and avoid storage in direct sunlight. Shelf life is 24 months. It is non-hazardous substance.

Contact Information

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