MANTA

Technical Data Sheet

Version: 1.0

Manta WS101

Deep-Penetrating Silane Water-Repellent Emulsion

Description

Manta WS101 is a highly concentrated penetrating silane emulsion. Based on 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 breathable, 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

- Durability: Provides long-term protection (up to 5 years) and extends the service life of concrete structures.
- 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. When applying by brush or roller, apply at least two coats and keep the surface wet for 2 minutes.
- 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 after 2–4 hours, when the first coat is almost dry.

Protective Effects

- Protection can last for 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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