

# Manta WS130

## Nano-Silane Concrete Protective Impregnation

### Description

Manta WS130 is a nanoscale silane-based hydrophobic impregnation, supplied as a clear, deeply penetrating liquid. Designed specifically for the heavy-duty protection of reinforced concrete, it meets and exceeds the rigorous requirements of Chinese industry standards for highway and port engineering (JTG/T B07-01-2006 and JTJ 275-2000).

Due to its exceptionally low molecular weight, the active nano-silane deeply penetrates the concrete substrate (achieving a penetration depth of 3 to 12 mm). Upon contact with atmospheric moisture and alkaline components within the cementitious matrix, it chemically reacts to form a permanent, deeply embedded hydrophobic barrier.

This treatment drastically reduces capillary water absorption and provides superior chloride-ion screening. By effectively mitigating moisture ingress, WS130 prevents rebar corrosion, freeze-thaw damage, spalling, and efflorescence caused by de-icing salts, acid rain, and marine exposure, thereby significantly extending the service life of the structure without altering its original visual appearance or breathability.

### Typical Physical Properties

Technical Index	Specification
Penetration depth, mm	≥ 3.0
48h water absorption ratio, %	≤ 10
Chloride absorption reduction effect	≥ 90
Concrete electric flux after treatment	≤300 coulombs
Frost resistance -20~20°C	20 cycles no surface change
Heat resistance 180°C, 4h	No surface change
Alkaline saturated calcium hydroxide solution immersion 168h	No surface change
Acid resistance 1% hydrochloric acid solution immersion 168h	No surface change
Steel bar corrosion	No rust

### Application

WS130 is engineered for the heavy-duty protection of reinforced concrete structures subjected to aggressive marine environments, airborne chlorides, de-icing salts, and severe freeze-thaw cycles. Ideal applications include:

- Seaports and marine terminals
- Highway bridges and urban viaducts
- Railway infrastructure and tunnel networks
- Exposed architectural concrete and power plant cooling towers

### Design basis:

Manta WS130 has been rigorously tested and fully complies with the strict anti-corrosion requirements for heavy-duty infrastructure, including:

JTG/T B07-01-2006: Technical Specifications for Anti-corrosion of Concrete Structures in Highway Engineering.

JTJ 275-2000: Technical Specifications for Anti-corrosion of Concrete Structures in Port Engineering.

### Application Guidelines & Surface Preparation

#### 1. Substrate Preparation

Proper surface preparation is critical for optimal penetration.

**Mechanical Cleaning:** Utilize suitable power tools or wire brushes to thoroughly remove laitance, friable concrete, dirt, marine growth, and loose debris.

**Chemical Cleaning:** Remove oil, grease, and curing compounds. Formwork release agents must be completely removed.

**Defect Repair:** Structurally repair deep honeycombing. Dynamic or static cracks wider than 0.2 mm must be routed and properly sealed prior to treatment.

**Rinsing & Drying:** Flush the cleaned surface with potable water. The substrate must dry under ambient conditions for at least 72 hours before application to ensure capillary pores are free of moisture.

#### 2. Application Prerequisites

**Curing Time:** New concrete must cure for a minimum of 28 days. Repaired areas must cure for at least 14 days.

**Ambient Conditions:** Substrate and ambient temperatures must be between 5°C and 45°C during application. Avoid high winds or impending rain.

#### 3. Application Procedure

Apply the impregnation continuously using low-pressure spraying equipment or a high-quality brush to ensure uniform flooding of the surface.

**Coverage Rate:** Apply at a rate of 200–300 g/m<sup>2</sup> per coat until the substrate is fully saturated.

**Coats:** A total of two coats is strictly recommended. Apply the second coat "wet-on-wet" or after a 6-hour interval.

**Protection:** Protect adjacent solvent-sensitive surfaces (e.g., joint sealants, asphalt) from overspray. Protect freshly treated surfaces from rain for at least 6-12 hours.

### Quality Assurance & Verification (QA/QC)

#### 1. On-Site Test Patch & Core Extraction

Prior to full-scale application, a representative test area (1-5 m<sup>2</sup>) must be treated. Seven days post-application, concrete core samples shall be extracted to verify capillary water absorption, penetration depth, and chloride screening.

#### 2. Lot Inspection

For stringent quality control, every 500 m<sup>2</sup> of treated surface constitutes a single inspection lot. Should any core metric fail, the entire inspection lot must undergo supplemental silane re-impregnation until full compliance is achieved.

### Packaging

In 20L and 200L containers.

### Safety and Storage

The shelf life is 2 years in an environment of  $0 < n \leq 25^{\circ}\text{C}$ . It is forbidden to store with acids, alkalis, amines and heavy metals or their compounds, and it cannot be placed in places contaminated by them.

### Precautions

1. This product is flammable and safety precautions should be taken. Keep the construction site well ventilated and away from sparks, heat sources and open flames.
2. Do not use it for electrical equipment and hydraulic structures.
3. Do not use this product in a humid environment, at a temperature below 5°C or in windy weather.
4. Construction workers must wear goggles and protective gloves as required during construction. If accidentally inhaled, move immediately to a place with fresh air. If it comes into contact with the skin, wash it immediately with water; if it comes into contact with the eyes, wash it immediately with water, take off the contaminated clothes and shoes and seek medical attention in time.

### Contact Information

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