MANTA

Technical Data Sheet

Version: 1.0

Manta WS120

Deep-Penetrating Nanoscale Silane Cream (≥40% Active)

Description

Manta WS120 is a deep-penetrating nanoscale silane cream (thixotropic paste) designed for the hydrophobic impregnation of exposed architectural concrete. Supplied as a water-based emulsion, it is highly specified for the preventative protection of new constructions as well as the preservation and maintenance of existing concrete infrastructure.

By forming a durable moisture barrier within the capillary network, WS120 effectively mitigates the ingress of aggressive corrosive agents, including acid rain and waterborne chlorides. It also actively inhibits the proliferation of mold, moss, and other biological growth that cause severe aesthetic discoloration. WS120 significantly enhances structural durability and extends the service life of reinforced concrete without altering its original breathability or appearance.

Typical Physical Properties

Manta Code:	WS120
Chemical Name:	Nanoscale penetrating water repellent (Deep-penetrating silane cream) Water-based silane emulsion paste
Active Ingredient Content:	≥ 40%
Appearance:	White paste/cream
Density (25°C):	About 0.86 g/cm^3
Viscosity (20°C):	≥ 4000 mPa.s
Hydrolyzable Chloride Content:	≤ 100ppm
Chloride Absorption Reduction Rate:	≥ 80%
Construction Method:	Brush, roller, high-pressure airless spray
Recommended Dosage:	300 g/m^2
Number of Coats:	1~2 coats
Recoating Interval:	After the previous coat is surface-dry
Tool Cleaning:	Water
Surface Drying Time:	2~3 hours
Complete Curing:	More than 7 days
Suitable Weather For Construction:	Sunny day, wind below level 4, temperature 5~40°C
Unsuitable Weather For Construction:	Rainy and snowy day, strong wind above level 5, freezing weather below 0°C
Note: No dilution required	

Properties

1. Deep Penetration: Achieves an exceptional penetration depth of 3–4 mm into dense concrete substrates.
2. Superior Protection: Significantly reduces capillary water absorption and blocks the ingress of waterborne chloride ions, stopping rebar corrosion at the source.
3. Breathable: Forms an invisible, vapor-permeable hydrophobic network; it does not form a coating film, so it does not blister, flake or peel.
4. Micro-Crack Mitigation: Highly effective at treating and imparting hydrophobicity to static micro-cracks up to 0.2 mm in width.
5. Optimized for Vertical/Overhead Use: The thixotropic paste formulation ensures zero sagging or dripping. It is specifically ideal for facades and overhead applications (soffits), minimizing material

waste.

6. Aesthetic Retention: Leaves the substrate's original architectural appearance and surface texture completely unaltered.
7. Eco-Friendly & Safe: Water-based formulation allows for easy tool cleanup and significantly lowers VOC emissions compared to pure liquid silanes.
8. Over-Coatable: After impregnation, the concrete can be finished with decorative coatings or fair-faced concrete protective coatings.

Standards & Compliance

Manta WS120 is rigorously tested and fully complies with the following national and industry standards for structural protection:
JT/T 991-2015: Silane Paste for the Surface Protection of Bridge Concrete.
JC/T 2235-2014: Siliceous Protective Agent for Concrete.
GB/T 9755-2014: Synthetic Resin Emulsion Coatings for Exterior Walls.
GB 50210-2018: Code for Acceptance of Construction Quality of Building Decoration.
JC/T 2273-2014: Test Methods for Active Ingredients and Harmful Substances in Silane/Siloxane Building Protective Agents.

Applications

Manta WS120 is highly specified for the long-term preservation of critical concrete assets exposed to severe environmental stressors, including marine tidal zones, coastal salt spray, chemical de-icers, and continuous freeze-thaw cycling.
Due to its non-sagging, thixotropic nature, it is well suited for vertical facades and overhead surfaces across various sectors:

- Transportation Infrastructure: Bridge piers, overhead soffits, urban overpasses, railway networks, and tunnel linings.
- Marine & Coastal Structures: Harbors, commercial docks, seawalls, and port facilities.
- Architectural & Industrial Assets: Fair-faced concrete facades, commercial building envelopes, and power plant cooling towers.

Packaging

In 20L barrel, 50L barrel.

Application Instructions & Surface Preparation

1. 1. Substrate Age (Curing Requirements) To ensure optimal penetration, newly cast concrete must be allowed to fully cure for a minimum of 28 days (4 weeks). Any areas treated with cementitious repair mortars must cure for at least 14 days prior to silane impregnation.

2. Surface Preparation Thorough surface preparation is important for the deep penetration of the thixotropic cream:

- Defect Rectification: Repair visible defects such as honeycombing, exposed rebar, voids and cracks with cement-based repair material.
- Mechanical Cleaning: Utilize a steel scraper, wire brush, or mechanical abrasion to completely remove laitance, dirt, and friable attachments.
- Contaminant Removal: Ensure the substrate is free from grease, oil, and atmospheric pollutants. If formwork release agents or curing compounds were used, their compatibility must be verified via a preliminary test patch. If they impede penetration, they must be completely removed mechanically.
- Moisture Parameters: The concrete surface must be visibly dry prior to application, with a residual moisture content strictly not exceeding 6%.

3. Application Equipment & Method

- Large-Scale Projects: The use of high-pressure airless spray equipment is highly recommended. This method maximizes application efficiency, ensures a uniform thick-film build, and significantly reduces material waste.
- Manual Detailing: For smaller or intricate areas, the paste can be effectively applied using a lambskin roller or brush.

4. Post-Application Protection Following application, the treated surface must be protected from rain, heavy moisture, and extreme weather conditions for a minimum of 24 hours to allow the silane to fully penetrate and complete its chemical reaction under ambient conditions.

Safety and Storage

Keep in original packaging barrel at 5-45°C, shelf life is 12 months.

Safety measures

This product should be avoided from contact with flowers and other plants, and any items that should not be exposed to the solvent environment should be protected.
Construction workers should wear goggles and protective gloves as required during construction. If accidentally inhaled, move to a place with fresh air immediately. If it comes into contact with the skin, wash it with water for 15 minutes immediately; if it comes into contact with the eyes, wash it with water for more than 15 minutes immediately, take off the contaminated clothes and shoes in time, and seek medical attention in serious cases.

Attention

The information listed in this document is based entirely on our knowledge gained in the laboratory and in practice. However, since the use of the product is usually beyond our control, we can only guarantee the quality of the product itself. We reserve the right to modify this product manual without prior notice.

Contact Information

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