

Manta CW-101 (CCCW)

Cementitious Capillary Crystalline Waterproofing Coating

Description

Manta CW-101 is a surface-applied, integral waterproofing coating for concrete structures. Formulated as a dry powder, it consists of Portland cement, highly refined quartz silica, and a proprietary blend of active chemical compounds. When mixed with water and applied to concrete, it provides a permanent, highly effective waterproofing system that becomes an integral part of the concrete matrix itself.

Reaction Mechanism The waterproofing effect is achieved through a unique crystalline technology. The active chemicals in Manta CW-101 utilize the moisture present in the concrete capillaries to react catalytically with the unhydrated cement particles and free lime (Ca(OH)_2).

This reaction generates non-soluble, needle-like crystals that penetrate deeply into the capillary tracts and micro-cracks of the concrete (effectively sealing the near-surface matrix, typically 5 – 50mm deep). These crystals permanently block the pathways for water and waterborne contaminants.

Typical Physical Properties

Manta code:	CW-101
Material Type:	Capillary Crystalline Coating (CCCW)
Appearance:	Grey cementitious powder
pH Value (Mixed):	> 12 (Alkaline environment required for crystallization)
Toxicity:	Non-toxic (Safe for potable water)
VOC Content:	0 g/L (Zero VOC)

Features

- **Autogenous Self-Healing:** The crystalline reaction remains dormant when dry but actively reactivates in the presence of moisture to seal new, subsequent micro-cracks, ensuring long-term structural integrity.
- **Positive & Negative Side Waterproofing:** Highly effective against severe hydrostatic pressure from either the positive (exterior) or negative (interior) side of the concrete structure.
- **Permanent Protection:** Becomes an integral part of the concrete matrix. It will not puncture, tear, or deteriorate like conventional surface membranes.
- **100% Breathable:** Completely blocks liquid water ingress while allowing water vapor to pass through, preventing vapor pressure build-up.
- **Potable Water Approved:** A green, non-toxic, and odorless formulation, strictly safe for use in drinking water reservoirs and food-processing facilities.

Application

Manta CW-101 is the ultimate waterproofing solution for critical concrete infrastructure:

1. Underground Structures: Basements, foundations, retaining walls, and underground parking garages.
2. Water & Wastewater: Potable water tanks, sewage treatment plants, reservoirs, and swimming pools.
3. Civil Engineering: Tunnels, subway systems, elevator shafts, dams, and bridge decks.

Application Guidelines

- Surface Preparation: Concrete surfaces must be clean, sound, and have an open capillary structure. Remove all laitance, dirt, oil, and existing coatings.
- Pre-Wetting (CRITICAL): The concrete substrate must be thoroughly pre-wetted to a saturated-surface-dry (SSD) condition prior to application. Moisture is the vital catalyst for crystal growth.
- Mixing: Mix the powder with clean water according to the specified ratio to form a creamy slurry.
- Application: Apply via a masonry brush or specialized spray equipment in one or two coats.
- Curing: Treated surfaces must be kept moist for 48 to 72 hours after initial set to ensure optimal internal crystal formation. Protect from extreme weather during curing.

Packaging

Manta CW-101 is typically supplied in 20kg (or 25kg) heavy-duty, moisture-resistant plastic pails or multi-wall paper bags with a polyethylene inner liner.

(Note: Plastic pails with tight-fitting lids are highly recommended for international maritime shipping to ensure maximum protection against ambient humidity. Customized packaging sizes are available upon request).

Safety and Storage

Storage Conditions (Strictly Dry): Store in a clean, strictly dry, and well-ventilated indoor environment. Keep containers tightly sealed and elevated off the ground on wooden pallets to prevent capillary moisture absorption from the floor.

Shelf Life: 12 months from the date of manufacture when stored properly in original, unopened, and undamaged packaging under dry conditions.

Moisture Warning: The active chemical compounds are highly hygroscopic. Any exposure to moisture or high humidity during storage will cause premature catalytic activation, resulting in irreversible lumping and loss of waterproofing efficacy.

Occupational Health & PPE (CRITICAL): This product contains Portland cement and highly alkaline active chemicals (pH > 12 when mixed with water). It is highly irritating to the skin, eyes, and respiratory tract.

Applicators must wear a NIOSH-approved dust mask, alkali-resistant gloves, and safety goggles during mixing and application.

Avoid generating excessive dust. In the event of ocular contact, flush immediately and continuously with copious amounts of clean water for at least 15 minutes and seek urgent medical attention.

Contact Information

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