

Technical Data Sheet

CARBOSHIELD

Anti-carbonation Exterior Coating

Description:

CARBOSHIELD is an elastomeric, water-based high solid protective coating based on a special acrylic polymer. It provides excellent elongation and recovery, resistance to aggressive elements, UV light and rain and formulated to provide a barrier to the ingress of Chlorides and Carbon Dioxide and other acid gases, but allows the passage of water vapor from the substrate. The elastomeric nature of CARBOSHIELD ensures good crack bridging properties. CARBOSHIELD is available in a wide range of colors.

CARBOSHIELD is a crack accommodating elastomeric protective coating for reinforced concrete structures. It comprises of a single component, penetrating primer which is supplied as a clear liquid and is based saline-siloxane dissolved in a penetrating organic carrier and a single component elastomeric pigmented coating, both ready for immediate site use.

Uses:

CARBOSHIELD is used as top coat on concrete substrates as:

- Anti-carbonation for carpark, residential and commercial buildings
- Anti-carbonation for bridges pass ways
- Car parks of malls and mega developments
- Protective coating at facades with high humidity
- Protective integral coating at EIFS thermal insulation system

Advantages:

- Water based, environmentally friendly, low V.O.C.
- Can accommodate substrate cracking up to 2mm and cyclic movement up to 0.3 mm.
- Excellent barrier to carbon dioxide, chloride ions, oxygen and water.
- Special acrylic polymer minimises dirt retention.
- Allows water vapor to escape from the structure.
- Resistant to the effects of ultra-violet light.

- Excellent characteristics of adhesion to the support, with high ageing resistance.
- Protects concrete against acid rains, chloride ions, sulfates and atmospheric gases.
- High UV-resistant, therefore, maintaining color integrity.
- Cured coating can be washed with water and detergents.
- Extremely durable - maintains elastomeric performance, with high recovery, even after long term UV weathering.

Instructions for Use:

Surface Preparation:

Proper preparation for the surface is quite essential in order to achieve a good bonding with the coating. All surfaces should be sound, clean, dry and free from loose material, efflorescence, laitance, curing compounds, dirt, oil and grease. A light grit-blasting for the surface (to reach a fine aggregates exposure only) will provide a perfect surface for application. All static cracks, blow holes, honeycombing voids and similar surface irregularities should be filled using LAVAREP 2P-two component polymer modified cementitious mortar and should be allowed to cure properly before the application of CARBOSHIELD. Consult MATEX Technical Department for further advice.

In case of deep contamination, shuttering oil, or non-degradable curing compound, apply grit blasting to achieve a clean surface, then remove all loose material by blowing off with dry oil free compressed air. If contamination is still existing after blasting, clean the surface with steam using suitable detergent solution. In case of algae, moss or any other similar growth contamination, clean the surface with biocide.

A primer coat is required to penetrate and 'stabilize' the substrate. Apply CARBOSHIELD PRIME-solvent based primer using roller or portable spray machine. The depth of penetration of the primer, and thus its coverage rate, are determined by substrate profile, porosity and general condition. In normal cases, a rate of 7 - 9 m²/lt. The primer should be allowed to dry for minimum of 1 hour at 35°C before application of CARBOSHIELD. Window glasses, grass, plants, joint

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sealants, asphalt pavements, painted areas should be well protected during application.

Mixing:

CARBOSHIELD is a single component product, stir the contents of the pail well before application to ensure no settled material.

Application:

CARBOSHIELD should be applied in two coats on the primed surface. It is preferable to use airless spray equipment for application, but can also be applied by roller/brush. The first coat should be applied to achieve a uniform coating with a wet film thickness not less than 200 microns. Allow the coat to dry for approximately 8-12 hours. Drying time will change depending on weather conditions. Apply the second coat at the same rate in perpendicular direction to the first coat.

Standards:

- ASTM C1305:95, C1202, B117, D412

TECHNICAL PROPERTIES	
Appearance	Liquid coating
Color	Consult MATEX for color range
Density	1.35 ± 0.03 kg/lit
Temp. of application	+5°C to +40°C
Superficial Drying	about 30 minutes at 30°C
Elongation at break (ASTM D412)	350%
Tensile Strength (ASTM D412)	1.5 N/mm ²
Crack bridging capacity (ASTM C1305)	>2.0 mm
Static crack capability @ 200 microns dft	2 mm
Water Resistance	100%
Permeability to CO ₂	>50 m
Permeability to water vapour Class I	0.07%
Chloride ion diffusion coefficient	7.3 Exp -15 m ² /sec
Reduction in chloride ion penetration in severe environment	98%

Carbon dioxide diffusion resistance (Taywood method)	Equivalent to air thickness 300mm. Concrete thickness (30 N/mm ²) 785mm
Salt Fog Resistance	>4800 hours
Service Temperature	-5°C +80°C
Ageing Resistance	Excellent
Chemicals Resistance	Excellent against rain, sea salt, diluted acid, sewage, alkalis and atmospheric agents.

*Values indicated may vary depending on the environment and conditions of the material. Figures given are tested according to standard laboratory conditions.

Coverage:

CARBOSHIELD achieves coverage approx. 1.25 square meters/lit @ 500 micron dry film thickness.

*Coverage rate is an approximate value, and subject to actual site conditions.

Packaging:

CARBOSHIELD available in 20 kg pails.

Storage Conditions:

Store in dry temperature-controlled warehouse away from direct sunlight in original sealed packaging. Storage temperature: +15°C to 25°C.

Shelf Life:

CARBOSHIELD can be utilized within 12 months of production date if stored in proper conditions in an unopened original packing.

Cleaning:

Clean tools and equipment with water before material hardens. Hardened materials can only be removed mechanically.

Remarks:

- Do not apply CARBOSHIELD with fog, imminent rain forecast or with the weather humidity more than 85%.
- All the tools used for preparation and application of the product can be washed with water before it dries.

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- Do not apply CARBOSHIELD for submerged water conditions.
- For external application during summer season or temperature higher than 45°C, working area should be covered to prevent the direct sun effects.
- CARBOSHIELD should not be applied in windy conditions where early-age dust adhesion may occur, or where rain is likely within 2 hours.

Health and Safety:

- Avoid contact with eyes and skin. Wear suitable protective clothing such as coveralls, goggles, dust mask and gloves. Use barrier cream. Ensure that there is adequate ventilation. Do not breathe vapor or spray mist.

FIRST AID:

Eyes:	In the event of accidental splashes, flush with warm water and seek medical advice.
Skin:	Wash skin thoroughly with soap and water
Inhalation:	Remove to fresh air, keep patient rested
Ingestion:	Do not induce vomiting. Seek immediate medical attention.

For further safety information, please refer to CARBOSHIELD Material Safety Data Sheet.

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