

MasterProtect 8000CI

Advanced organofunctional silane-based corrosion inhibitor for steel reinforced concrete

Material Description

MasterProtect 8000CI is a single component, solvent free, ready to use, low viscosity, clear liquid which combines the proven effectiveness of penetrative silane treatments for the control of moisture and chloride ion ingress with advanced organofunctional corrosion inhibition.

Areas of Application

MasterProtect 8000CI is sprayed directly onto the surface of all uncoated steel reinforced concrete structures and buildings. It is suited for old and new structures and penetrates deeply into the concrete.

It is highly reactive and resistant to alkaline environment so particularly suited for the protection of:

- Bridge decks, piers columns and beams
- Multi-Story carparks, building facades and balconies
- Marine environment with high relative humidity and areas where deicer salts are used such as jetties, piers, decks and structures

MasterProtect 8000CI is used as part of an overall repair strategy using MasterEmaco repair systems to mitigate corrosion of the embedded reinforcing steel and significantly reduce the possibility of ring or incipient anode induced corrosion of the reinforcing steel.

MasterProtect 8000CI can be used as a cost-effective preventative measure before the onset of corrosion induced problems occur.

Characteristics & Benefits

- Prevents ingress of water borne contaminants - dramatically reduces chloride and carbonation induced corrosion of steel reinforcement.
- Reinstates the passive layer on the outer layers of the reinforcing steel - increases resistance of steel to attack by chlorides already present in the structure. Works at the molecular level to effectively inhibit macrocell (rebar to rebar) and microcell (on the same rebar) corrosion.
- Proven long term effectiveness - global references in service for more than 15 years.

- Equally effective in high humidity conditions
- Chemically bonds to steel, cement paste and other siliceous material – will not wash or leach out during wetting / drying cycles, ensuring extended active life.
- Does not discolour or change appearance of concrete – suitable for use on architectural concrete.
- Breathable - Forms colorless and water vapour permeable impregnation. Allows vapour to leave structure but prevents ingress of liquid water.
- Equalizes in electrochemical potential between repaired section and existing concrete when applied to concrete structures repaired with polymer cementitious mortars
- Meets the requirements of EN 1504-2 and can be used according to principles 1, 2, 8 and 11 of EN 1504-9

Properties

Colour	Clear to slightly amber
Density (DIN 51757)	0.88g/cm ³
pH	11
Flash Point	63°C
ViscosityDIN53015	0.95 mPa.s (20°C)
Active Ingredient	>98%

Test Method:

U.S. Federal Highways Administration Test protocol for cracked Beam Concrete

MasterProtect 8000CI was sprayed at the approved application rate onto standard test specimens where the concrete (W/C ratio 0.47) had been deliberately cracked along the length of the reinforcing steel to simulate real life experiences of transverse bridge deck cracking.

The specimens were then subject to the following rigorous conditions:

48 weeks cyclic salt water ponding (15% salt solution) whilst maintaining a relative humidity fo 70-80% at a temperature of 370C



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The results are summarised below:

Specimen conditioning	Observed results compared with untreated control specimens
Cracked concrete: NO pre-existing corrosion	99% reduction in corrosion
Cracked concrete WITH existing corrosion	92% reduction in corrosion

Reduction in Chloride ingress

Control			MasterProtect 8000CI treated		
12 weeks	24 weeks	48 weeks	12 weeks	24 weeks	48 weeks
0.703*	0.861	1.020	<0.007	0.010	<0.007
0.321	0.628	0.645	<0.007	<0.007	<0.007
0.032	0.386	0.0386	<0.007	<0.007	<0.007
<0.007	0.040	0.040	<0.007	<0.007	<0.007

* Chlorides measured according to ASTM II52

Application

Preparation of Substrate

Concrete surfaces must be dry and cleaned to remove all traces of mould oil, curing compounds, dirt, dust, efflorescence, mold, algae, grease, oil asphalt, paint, lacquers, or other coatings or any other materials that would prevent penetration. Acceptable cleaning methods include shotblasting, high pressure water blasting, or grinding.

All delaminated, loose or spalled concrete must be removed and repaired with an approved product from the MasterEmaco concrete repair range.

MasterProtect 8000CI can, as an additional protective measure, be applied directly to exposed rebar before repair work commences.

Non-moving shallow shrinkage cracks are treated with multiple coats or ponding of MasterProtect 8000CI.

Other cracks or failed joint sealants should be routed clean and treated with MasterProtect 8000CI before being filled with suitable joint sealant from the MasterSeal range.

Application

Apply MasterProtect 8000CI to the entire surface to be protected, including any repaired areas, using low-pressure spray equipment with a suitable fan nozzle.

A total application of 600ml/m² is usually required applied in two or three separate applications.

(e.g. Horizontal applications 2 x 300ml while vertical and overhead 3 x 200ml).

Allow a minimum of 15 minutes between coats (or until visibly dry).

As surfaces in tidal or splash zones will always be wet, the ability to absorb is reduced; so MasterEmaco 8000CI has to be applied in several coats (6 coats or more) in order to achieve the required amount of corrosion inhibitor inside the treated concrete.

Do not apply at temperatures below 5°C or over 35°C. Allow concrete surfaces to dry for between 24 and 72 hours after heavy rain or cleaning with water before applying MasterProtect 8000CI.

Do not apply if rain is expected within 4 hours.

Do not alter or dilute the material as supplied.

Coverage

Substrate	Application rate
Concrete (above water level)	Min 500g/m ² in 2-3 coats with 180-250 g/m ² each
Concrete (in tidal or splash zone)	>600g/m ² in 5-6 coats with 150 g/m ² each

Packaging

MasterProtect 8000CI is available in 20 litre drums.

Storage & Shelf Life

MasterProtect 8000CI can be stored under normal warehouse conditions between 5°C and 30°C for a period of 2 years. Keep containers closed when not in use and away from naked flames, heat sources and sparks.



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Precautions

For the full health and safety hazard information and how to safely handle and use this product, make sure that you obtain a copy of the Safety Data Sheet (SDS) from our office or website.

Disclaimer

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STATEMENT OF RESPONSIBILITY

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