

MasterProtect® 8000CI

Advanced organo-functional Silane based corrosion inhibition

DESCRIPTION

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

RECOMMENDED USES

MasterProtect 8000CI is designed for the protection of reinforced concrete where active corrosion is present or situations where ingress of chlorides has occurred and the prevention of future deterioration is required.

MasterProtect 8000CI is suited to all types of reinforced concrete including cast insitu, pre-cast and post tensioned and pre-stressed concrete as well as any other types of reinforced concrete.

It is particularly suited to the protection of:

- Marine structures – Jetties, Harbor walls, Wharfs, and piers
- Highway structures - Bridge superstructure, Decks, support piers and soffits
- Rail infrastructure - bridges and tunnels
- Power plants – flue gas chimneys, cooling towers seawater intakes and outfalls and coal hoppers
- Commercial and residential buildings - Beams, columns, and reinforced concrete walls
- Car parks – parking decks and all other structural element
- Water management structures – sewage settlement tanks, aeration tanks, potable water tanks, reservoirs
- **MasterProtect 8000CI** is used as part of overall repair strategy in conjunction with MasterEmaco® repair systems to halt or reduce corrosion rates of the reinforcement and mitigate the effect of incipient anodes.
- **MasterProtect 8000CI** can also be used as a cost effective preventative measure to protect a new reinforced concrete structure.
- **MasterProtect 8000CI** can also be used to prevent deterioration in new structures which have suffered from chloride ingress but have not yet suffered from reinforcement corrosion.
- Contact the technical department of your local Master Builders Solutions Construction Chemicals for further information.

FEATURES AND BENEFITS

- **Significantly reduces chloride induced corrosion of reinforcement in concrete** – extends the service life of a structure
- **Reduces the corrosion of the reinforcement in concrete suffering from carbonation** – increases the time until the first maintenance
- **Reduces chloride ingress** – prevents diffusion of water borne chlorides to the reinforcing steel.
- **Penetrates into the concrete as an impregnation** – is not effected by abrasion of the structures surface so provides a long life in aggressive conditions
- **Proven long-term effectiveness in laboratory and field trials in aggressive conditions** – demonstrated proven performance in excess of 10 years.
- **Chemically bonds to steel, cement paste and other siliceous materials** – will not wash out or leach during wetting or drying cycles when applied to marine structures ensuring extended active life
- **Simple spray application using backpack** – cost effective as no costly equipment is required and reduces application time
- **Does not discolour or change the appearance of the structure but can be supplied with a fugitive dye** – treated area easily identified and assists in quality control
- **Vapour permeable treatment** – allows the structure to breath
- **Can be overcoated with MasterProtect® coatings and MasterBrace® systems** – forms part of a complete repair package for all types of refurbishment projects

PROPERTIES

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|------------------|--------------|
| Supply form | Clear liquid |
| Specific gravity | 0.88 |
| pH | 7 to 8 |
| Flash point | 63°C |
| Viscosity | 0.95 mPas |

U.S. Federal Highways Administration Test protocol for cracked beam concrete

MasterProtect® 8000CI

Test Method

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. Some specimens showed existing corrosion before application while others were, others did not.

The specimens were then subject to the following rigorous conditions: 48 weeks cyclic salt water ponding (15% salt solution)

High Relative Humidities: 70–80%

Elevated temperatures: 37°C

Corrosion Inhibition

| 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

Tests according to ASTM 1152 at depths of 12.5mm, 50mm and 69mm.

| 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 | 0.038 | <0.007 | <0.007 | <0.007 |
| <0.007 | 0.040 | 0.040 | <0.007 | <0.007 | <0.007 |
| *Chlorides measured according to ASTM 1152 | | | | | |

APPLICATION

Surface Preparation

Concrete surfaces must be dry and cleaned to remove all traces of, mold release agent, curing compounds, marine growth, oil, grease, and algae. Any coatings, paint lacquers or surface treatment and loose particles, other contaminants that would prevent penetration must be removed by high pressure water jetting or other such effective methods such as abrasive blasting or grinding. All delaminated, loose, or spalled concrete must be removed and repaired with an approved product from the MasterEmaco®

range of products prior to application Non-moving or shallow shrinkage cracks with no structural significance are simply treated with multiple coats or ponding of **MasterProtect 8000CI**. Other cracks or failed joint sealants should be routed and treated with **MasterProtect 8000CI** before repair or reinstatement using a suitable product from the MasterInject® or MasterFlex® range of injection resins or joint sealants. Apply the **MasterProtect 8000CI** to the entire reinforced concrete surface to be protected, including any repaired areas using low pressure spray equipment with a suitable fan nozzle. **MasterProtect 8000CI** is usually required applied in two or three applications depending upon the location of the surface to be treated (vertical or horizontal).

Allow a minimum of 15 minutes between coats (or until the concrete is visibly dry)

In cases where the temperature is below 5°C or above 35°C please contact Master Builders Solutions technical services for guidance. Avoid application on a windy or a rainy day and start after at least a couple of hours of clear sunshine following rains ensuring the concrete surface is dry. Do not alter or dilute the material as supplied.

ESTIMATING DATA

MasterProtect 8000CI is applied in two or three coats at a total volume of 600ml/m²

Horizontal surfaces: 2 coats @ 300ml/m²

Overhead or vertical surfaces: 3 coats @ 200ml/m²

PACKAGING

MasterProtect 8000CI is available in 1000L containers and 205L or 28L drums.

SHELF LIFE

MasterProtect 8000CI has a shelf life of 12 months. Store out of direct sunlight, clear of the ground on pallets protected from rainfall.

PRECAUTIONS

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

MasterProtect® 8000CI

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