

## Polymer Modified Fine Concrete Repair Mortar incorporating Corrosion Inhibitor

**Guardian CRM-CI** is a ready to use low shrinkage economical one component polymer modified structural repair mortar containing fibres and silica fume.

**Guardian CRM-CI** contains specially selected materials to provide a fine, smooth repair material and a corrosion inhibitor to protect reinforcement.

**Guardian CRM-CI** is developed with an integral corrosion inhibitor that migrates through the concrete to form a passive layer on the reinforcement providing additional protection from chlorides and other salts.

**Guardian CRM-CI** is suitable for structural repairs in buildings, marine structures, bridges and other infrastructure. It is suitable for structural strengthening and preserving/restoring passivity according to EN 1504-9.

### Complies to EN1504 part 9 and EN1504 Part 3 class R4 and Part 4.

- Principle 3 : Concrete Restoration (CR).
- Method 3.1 - Applying mortar by hand.
- Method 3.3 – Spraying concrete or mortar.
- Principle 4 : structural strengthening (SS).
- Method 4.4 – Adding mortar or concrete.
- Principle 5 – Increase in physical resistance (PR).
- Method 5.3 – Adding mortar or concrete.
- Principle 7 : Preserving or restoring passivity (RP).
- Method 7.1 – Increasing cover to reinforcement with additional concrete or mortar.
- Method 7.2 – Replacing contaminated or carbonated concrete.

## USES & ADVANTAGES

**Guardian CRM-CI** is a fine, ready to use repair mortar for repairing concrete surfaces including small honeycombs, surface defects, blowholes and minor damage. It can also be used to repair corrosive damage to concrete surfaces.

### Advantages include:-

- Structural repair mortar.
- Easy to apply. Excellent workability.
- Non shrink. Non toxic. Non corrosive.
- Water & weatherproof.
- Reduces carbonation significantly.
- Excellent adhesion and mechanical strengths.
- Contains no chlorides or salts that may cause corrosion.
- Suitable for hand and machine application.
- Good colour matching to concrete.
- Good resistance to chlorides & sulphates.
- Contains fibres to reduce micro cracking and improve durability.
- Provides effective protection to reinforcement by the incorporation of a corrosion inhibitor.
- Long term rebar protection.
- Provide 3 times rebar life extension.

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### PROPERTIES

Appearance:	Grey powder
Compressive Strength:	$\geq 50$ N/mm <sup>2</sup>
ASTM C109	after 28 days at 25°C
Bond Strength to Concrete:	$\geq 2$ N/mm <sup>2</sup> (concrete failure)
ASTM D4541	after 28 days at 25°C
Drying Shrinkage:	<400 micro strain at 7 days
ASTM C490	<560 micro strain at 28 days
Coefficient of Thermal Expansion:	$11 \times 10^{-6}/^{\circ}\text{C}$
Pot life:	30-40 min @ 25 °C
Water Absorption ISAT: 10 mms	< 0.007 ml/m <sup>2</sup> /sec
BS 1881 Part 5:	2 hours < 0.0045 ml/m <sup>2</sup> /sec

*Note: Properties depend on water content and are typical under laboratory conditions.*

### SUBSTRATE PREPARATION

The substrate should be clean & sound. Remove dirt, dust, oil, grease, laitance, sealers, release agents, curing compounds & paints.

Exposed rebar should be cleaned & protected with **Guardian Zinc Primer**.

The concrete should be presaturated for preferably 6 hours with water before application.

Substrate temperature : +5°C min +35°C max.

Ambient temperature : +5°C min +35°C max.

### PRIMING

Priming is not normally required. Surfaces to receive **Guardian CRM-CI** should be well saturated with water first.

### MIXING & APPLICATION

**Guardian CRM-CI** is simply mixed with water to yield a stiff easily workable compound with shrinkage compensating properties.

The quantity of water depends on the desired consistency but as a guide we recommend 16-18% by weight of **Guardian CRM-CI**.

Mix with a paddle mixer or trowel for at least 3 minutes to ensure a homogenous lump free material is achieved.

Do not try to remix the product after losing workability by the addition of more water.

### METHOD OF USE

Apply **Guardian CRM-CI** with a trowel, spatula, float or by spray. By hand press hard. Work up to 20 mm. in one layer. Thicker repairs may be achieved by working in layers.

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### TYPICAL INJECTION



1. Remove damaged concrete and prepare exposed steel reinforcement.

2. Thoroughly clean area of repair using high pressure water jet to remove all loose debris and contamination. Fingers should be able to be fitted behind rebar.

3. Mix and apply **Guardian Zinc Primer** to rebar allow to dry. Apply **Guardian LPA** bonding bridge if required. Apply repair material WET ON WET to bonding bridge.

4. Replace damaged concrete using **Guardian CRM-CI** one component polymer modified mortar, build up in layers if necessary.

5. Once set firm, the repair and surrounding area coat with **Guardian 90** or **Guardian 75** curing compound.

6. Remove any remaining **Guardian 90** from treated area if to overcoat.

7. Any further leveling may be achieved with fairing material.

8. A final coat of **Guardian ELASTOSHIELD** decorative elastomeric, anti-carbonation coating will prevent the ingress of water chlorides and other aggressive influences, effectively halting the carbonation process. **Guardian ELASTOSHIELD** is water vapour permeable, allowing the substrate to breathe, and has excellent elasticity, bridging dynamically moving cracks even at low temperatures.

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### CURING

To prevent rapid surface drying and crazing, use a suitable curing compound from Guardian's **Guardian** range e.g. **Guardian 90**.

### CONSUMPTION

Approx. 2 kg/m<sup>2</sup>/mm.

### STORAGE & SHELF LIFE

**Guardian CRM-CI** has a shelf-life of up to 12 months in unopened packs kept in a dry store. If high humidity is apparent the life may be reduced to 6-8 months.

### PACKAGING

25 kg. 4 ply plastic lined bags.

### HEALTH & SAFETY

**Guardian CRM-CI** is non-toxic but is alkaline in its nature. When applying gloves & goggles should be worn. Wash off splashes to skin with water. If in eyes wash out with plenty of clean water and seek medical attention. **Guardian CRM-CI** is non-flammable.

### TECHNICAL SERVICE

The Guardian Coating Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

### QUALITY ASSURANCE

ISO 9001: 2015 verified by TUV Nord.

All statements and data presented herein are given in good faith and believed to be appropriate and reliable. It is given without express or implied warrant or guarantee. Potential users of Guardian's materials are urged to conduct confirmatory trials to satisfy themselves as to the suitability of the selected product for their particular end use prior to purchase.