

## High Early Strength Repair Mortar For Marine Applications

**Guardian CRM-HSM** mortar is a structural repair/ repro-filing mortar for use in marine and tidal areas subjected to early immersion.

Complies to EN1504 Part 9 and EN1504 Part 3.

**Principle 3** : Concrete Restoration (CR).

- Method 3.3 – Spraying concrete or mortar.

**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

Use to achieve rapid repairs in areas subject to early water immersion or traffic. Ideal for repairing marine structures.

**Advantages include:-**

- Very rapid strength gain.
- Compatible to substrate.
- One part easy to mix & apply.
- Very dense with low shrinkage to reduce the incidence of chloride or moisture ingress.
- Excellent resistance to wash out.
- Non toxic.
- Thixotropic allowing for 30 mm+ build on vertical surfaces.

### PROPERTIES

<b>Appearance:</b>	Grey Powder	
<b>Wet Density:</b>	Approx 2,100 kg/m <sup>3</sup>	
<b>Bond Strength to Concrete:</b>	> 2.5N/mm <sup>2</sup>	
ASTM D4541	at 28 days	
(Concrete failure)		
<b>Drying Shrinkage:</b>	< 500 micron	
ASTM C490	at 28 days	
<b>Pot Life</b> :	5-10 minutes when applied in mortar consistency.	
<b>Compressive Strength at 30°C ASTM C109</b>		
	<u>Compressive Strength</u>	<u>Typical Results</u>
	2 hours	> 25 N/mm <sup>2</sup>
	4 hours	> 35 N/mm <sup>2</sup>
	8 hours	> 40 N/mm <sup>2</sup>
	24 hours	> 50 N/mm <sup>2</sup>
	28 days	> 70 N/mm <sup>2</sup>
<b>Water Content:</b>	10 %	

**Note:** These are typical figures results may vary depending on water content used, mixing time, and ambient temperature.

## High Early Strength Repair Mortar For Marine Applications

### SUBSTRATE PREPARATION

Surfaces should be clean, sound and free from oil, grease, laitance and loose particles. Metal surfaces should also be clean & free from rust, oil & grease.

### MIXING

**Guardian CRM-HSM** should be mixed using a suitable mixer. Use a slow speed < 400 rpm hand drill and paddle. For large works use a high shear vane grout mixer. Drum mixers may not mix sufficiently. For **Guardian CRM-HSM** use 2.5-2.7 litres of clean water for patch repairing of concrete, 2.9-3.1 litres for pourable consistency and 3.3 to 3.5 ltr for fluid consistency. Add slowly to the water (add the total bag). Mix continuously for 3 minutes ensuring a smooth even consistency is obtained.

### APPLICATION

Ensure the substrate is correctly prepared, no contamination and saturated with water at least 3-4 hours prior to placing. No free water should be left. Place within 5-10 minutes of mixing.

### CURING

To prevent rapid surface drying and crazing, use a suitable curing compound from Guardian range. e.g. **Guardian CURE-SW**. At temperatures below 20°C early strength gain maybe affected.

### IMPORTANT NOTES

- Minimum applied thickness of **Guardian CRM-HSM** is 10 mm.
- At temperatures above 35oC – 40oC cooling of water with ice will make handling & placement easier. Mixers & tools should be kept shaded.
- Place as soon as mixed.

### CONSUMPTION

For patch repairing of concrete: approx. 75 bags of 25 kg/m<sup>3</sup> by using 10% of water.  
For fluid consistency: approx. 72-74 bags of 25 kg/m<sup>3</sup> by using 294 litres of water.  
For pourable consistency: approx. 74-77 bags of 25 kg/m<sup>3</sup> by using 243.6 litres of water.

### CLEANING

Clean all tools with water immediately after use.

### PACKAGING

25 kg. 4 Ply plastic lined bags.

### STORAGE CONDITIONS & SHELF LIFE

Store in dry shaded conditions. The shelf life is 6 months if kept dry in original packaging. High temperatures and humidity may reduce shelf life.

## High Early Strength Repair Mortar For Marine Applications

### HEALTH & SAFETY

During use avoid inhalation of dust & contact with skin & eyes. Wear protective clothing. In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately  
- **do NOT** induce vomiting.

### TECHNICAL SERVICE

Guardian offers a comprehensive range of high performance, high quality products suitable for use within all aspects of the concrete repair and protection industry. In addition, the company offers a technical support package to specifiers, end users and contractors, as well as on-site assistance. 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 (OEM)

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.