

A single component pourable non-shrink low alkali micro concrete

Guardian MCP is a high strength, free flowing, shrinkage compensated concrete with low alkali content. The product is manufactured using especially selected cement, aggregates, fillers & polymers to provide a stable, free flowing micro concrete with controlled expansion both in wet & hardened states. It exhibits excellent thermal compatibility with concrete. Low water contents ensure a dense, durable & high strength material is achieved. Meets the requirements of EN 1504-3 class R4.

USES & ADVANTAGES

Guardian MCP's fluid properties ensures compaction and vibration are not required, its density provides excellent chloride and carbon dioxide resistance & reduces the incidence of alkali – silica reaction and sulphate attack.

Uses as a result of these properties include:-

- Pile cap repair.
- Repair of large sections including marine structures, bridges and beams etc.
- Difficult access locations where hand application is not feasible.
- As a repair material where cathodic protection is used.
- In applications where poured under pressure.
- Filling voids/sections up to 250 mm (consult Guardian for deep sections).

Advantages include:-

- Excellent bond to concrete.
- Can pump or pour.
- Self-compaction, no vibration eliminates honey combing.
- High early & final strengths.
- Shrinkage compensated both wet & hardened state.
- Low permeability provides excellent protection against chloride & carbon dioxide.
- Low alkali content.
- Meets the requirements of EN1504-3 class R4.

PROPERTIES

Appearance:	Grey Powder
Compressive Strength: ASTM C109	≥ 30N/mm ² at 1 day ≥ 50N/mm ² at 3 day ≥ 65N/mm ² at 28 day
Flow Properties:	J-rote 8-10 seconds
Drying Shrinkage: ASTM C490	< 450 micro strain at 7 days < 500 micro strain at 28 days
Water Absorption: BS 1881 pt.5	10 mins 0.018 ml/m ² /sec. 2 hours 0.001 ml/m ² /sec.
Wet Density	Approx. 2220 kg/m ³ depending on consistency used.
Rapid Chloride Permeability: ASTM C1202	< 650 coulombs
Yield :	77-78 x 25 kg bag/m ³ of grout
Water by weight of grout :	15-16%

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CE REQUIEMENTS EN 1504-3 CLASS R4

	Results in laboratory	Requirements R4
Compressive Strength:	> 65 N/mm ²	≥ 45 N/mm ²
Choride Ion content:	< 0.004%	≤ 0.05%
Adhesive Bond:	2.0 N/mm ²	≥ 2.0 N/mm ²
Restrained Shrinkage:	2.0 N/mm ²	≥ 2.0 N/mm ²
Elastic Modulus:	20 Gpa	≥ 20 GPa
Thermal Compatibility:	2.0 N/mm ²	≥ 2.0 N/mm ²

SURFACE PREPARATION

Surfaces to be repaired should be sound, clean with all contaminates such as oil, grease, dirt, paint, mould oil, curing compounds etc. removed.

Formwork should be rigid & sealed. Drain outlets should be installed to allow drainage of water after soaking under soffits air vents should also be incorporated. Edged should be sawn out to right angles with no feather edges. Corroded steel should be exposed fully including the back. Rebar should be grit blasted or water blasted to remove rust & chlorides if present.

Rebar Priming: After cleaning rebar it should be primed with **Guardian Zinc Primer** or **Guardian ST-E** depending on the surface condition.

Substrate Priming: Several hours before placing **Guardian MCP** the whole surface should be saturated with water by filling the prepared formwork with clean water. All excess water must be removed before applying **Guardian MCP**.

MIXING

Mix using a forced action mixer or heavy duty slow speed drill (400-500 rpm) with spiral paddle. Never mix part bags. Add powder to water and mix for 3-4 minutes until a smooth homogenous consistency is achieved. The water content should be between 3.75-4.00 litre per 25 kg bag. Place all the mixed material within 30 minutes of mixing do not rework material by adding more water. If weather conditions are very hot use chilled water.

No vibration is required when placing. Cure **Guardian MCP** exposed surfaces immediately & stripped surfaces with Guardian. In rapid drying conditions exposed surfaces may be cured with polyethylene sheet taped down at edges.

Where the surface is to receive a coating or render use **Guardian CURE-S** which are specifically manufactured to receive finishes.

PACKAGING

25 kg. 4 Ply plastic lined bags.

STORAGE CONDITIONS & SHELF LIFE

Store in unopened bags in dry shaded conditions. The shelf life is 9-12 months when stored correctly if stored in high humidity the shelf life may reduce to 4-6 months. High temperatures and humidity may reduce shelf life.

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HEALTH & SAFETY

Protective clothing such as gloves and goggles should be worn. Wash off material from skin with fresh water on contact. If in contact with eyes rinse with plenty of clean water & seek medical attention. If swallowed do not induce vomiting seek medical attention immediately.

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.