Cempatch FL100

High performance shrinkage compensated free flowing micro concrete

DESCRIPTION

Cempatch FL100 is a single component polymer modified high performance repair system. Cempatch FL100 is composed of a blend of dry powders and selected aggregates which when mixed with water produce a shrinkage compensated, self compacting and free flowing micro-concrete suitable for large volume concrete repairs.

APPLICATIONS

Repair of all types of structural concrete elements such as walls, columns, beams and floors.

ADVANTAGES

- High initial and ultimate strength development.
- Very high flow, suitable for repair of steel congested areas.
- Shrinkage controlled polymer modified cementitious repair eliminates cracking.
- Easy to apply, single component, requires only addition of water.
- Extremely low permeability, providing excellent protection to steel reinforcements and host concrete.
- Self compacting and self priming, with high bond strength.
- Suitable for internal and external applications.
- No independent primer is required.
- Maximum aggregate size of 3mm to improve application and finish.

STANDARDS

Cempatch FL100 complies with EN 1504-3 as structural and non-structural repair Class R4, repair methods 3.2, 4.4, 7.1 and 7.2.

METHOD OF USE

SUBSTRATE PREPARATION

All damaged and weak concrete shall be cut back to reach sound concrete or to a minimum depth of application. Corroded steel reinforcement should be grit blasted to remove all rust traces. Steel loss up to 25% of original section shall be compensated, where loss of section exceeds 25%, steel reinforcement shall be replaced.

Remove all concrete form around exposed steel reinforcements by 20 mm thickness. The perimeters of the repair area should be saw cut to a minimum depth of 10 mm. The prepared area should be cleaned thoroughly by brush and/or compressed air. A water tight formwork should be used to avoid material loss.

TECHNICAL PROPERTIES. W/P = 0.134		
Fresh wet density:		2.30 ± 0.05 g/ml
Working time:		≈ 20 min @ 25°C
Setting time:	Initial	2 – 3 hr @ 25°C
	Final	3 - 4 hr @ 25°C
Compressive strength:		> 30 MPa @ 3 days > 50 MPa @ 7 days > 60 MPa @ 28 days > 50 MPa @ 10 days @ 5°C

Performance Characteristics	EN 1504-3 Class R4 Requirements	Cempatch FL100
Compressive strength EN 12190	> 45 MPa @ 28 days	> 60 MPa @ 28 days
Chloride ion content EN 1015-17	≤ 0.05%	< 0.03%
Adhesive bond EN 1542	≥ 2 MPa @ 28 days	≥ 2 MPa @ 28 days
Thermal compatibility (Freeze-thaw cycles) EN 13687-1	≥ 2 MPa	≥ 3 MPa
Carbonation resistance EN 13295	dk≤ Control concrete	Pass
Elastic modulus EN 13214	≥ 20 Gpa	> 30 Gpa
Capillary Absorption EN 13057	≤ 0.5 $kg/m^2.h^{0.5}$	< 0.2 $kg/m^2.h^{0.5}$
Reaction to fire EN 1504-3 cl 5.5	Class A1	
Dangerous to substances	Complies with 5.4	

Areas to be repaired with Cempatch FL100 should be soaked with clean water for several hours before applying the Cempatch system. All excess water should be removed.

PRIMING

All grit blasted steel reinforcements should be primed within 2 - 4 hours with one or two coats of zinc rich epoxy coating Repcoat ZR.

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Provided that the substrate has been thoroughly soaked with clean water, and is damp on application of product a primer is not normally required.

For concrete highly contaminated with soluble salts, it is recommended to use Quickmast 108, an epoxy bonding agent, which prevents migration of salts such as chloride ions and sulphate to the repair patch, as well as providing bond for Cempatch FL100 to host concrete.

MIXING

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used. 3.25 - 3.50 litre of clean water should be added to clean container. The powder is then added slowly to the water while mixing continuously with low speed mixer/drill (400 – 600 rpm). Mixing should be continued for 3 minutes until a uniform consistency is obtained.

It is recommended that the mixed product be passed through a suitable coarse metal screen prior to placing or pumping to highlight any unmixed material.

PLACING AND FINISHING

Cempatch FL100 should be poured in a single continuous operation, within 20 minutes of mixing. The mixed materials should be poured slowly to prevent air entrapment.

CURING

As Cempatch FL100 is a cementitious based material, it should be cured in a similar method to concrete. Curing can be conducted by using a good concrete curing compound such as Setseal AW309 or Setseal 6.

CLEANING

All tools shall be cleaned immediately after application using fresh water. Hardened materials must be cleaned mechanically.

PACKAGING

Cempatch FL100 is available in 25 kg bags.

THICKNESSES AND SIZE LIMITATIONS

Cempatch FL100 can be applied in a single application for large repair voids at thicknesses up to between 25 - 300 mm. For large areas, DCP Technical Office should be consulted.

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PRECAUTION

- In temperatures as low as 5°C, using warm water (up to 30°C) for mixing is recommended to speed up strength development. Standard winter precautions for cementitious materials should be followed.
- Do not apply if the substrate or air temperature is 5°C and falling. Application can proceed at 5°C if the temperature is stable or rising.
- At temperatures above 35°C, store the material in the shade and use cool water for mixing.
- Always mix full bags. Do not mix partial bags.

YIELD

Approximately 12 litre per 25 kg bag (83 bags/m^3).

STORAGE

Cempatch FL100 has a shelf life of 12 months from date of manufacture if stored at temperatures between 2°C and 40°C in original unopened bags.

If these conditions are exceeded, contact DCP Technical Department for advice.

CAUTIONS

HEALTH AND SAFETY

Cempatch FL100 may cause irritation to skin or eyes. In case of accidental contact with eyes, immediately flush with plenty of water and seek medical advise.

For further information refer to the Material Safety Data Sheet.

FIRE

Cempatch FL100 is nonflammable.

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- Building products.
- Structural strengthening.