Cempatch FL

Shrinkage compensated free flowing micro concrete

DESCRIPTION

Cempatch FL is a single component polymer modified repair system. Cempatch FL 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.

STANDARDS

Cempatch FL complies with the requirements of EN 1504-3 as a structural repair product Class R4 for principles 3.2, 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:

Colour:	Grey & white		
Compressive strength: BS EN 12390-3	Cempatch FL		
	STD	90	100
@ 1 day	≥ 30 MPa	≥ 40 MPa	≥ 45 MPa
@ 3 days	≥ 45 MPa	≥ 60 MPa	≥ 65 MPa
@ 7 days	≥ 55 MPa	≥ 70 MPa	≥ 75 MPa
@ 28 days	≥ 65 MPa	≥ 80 MPa	≥ 85 MPa
Flexural strength: ASTM C348	Cempatch FL		
	STD	90	100
@ 28 days	≥ 9 MPa	≥ 11 MPa	≥ 13 MPa
Length change: ASTM C157	Cempatch FL		
	STD	90	100
@ 56 days	up to 0.008%	up to 0.01%	less than -0.02%
Working time:	20 – 25 min @ 20°C 12 – 17 min @ 35°C		
Setting time: EN 196-3			
Initial	6 – 7 hr @ 25°C		
Final	9 – 10 hr @ 25°C		
Water penetration: DIN 1048	≤ 10 mm		
Mixing ratio:	Cempatch FL STD 3.35 litre of water for 25 kg bag of Cempatch FL STD Cempatch FL90 3.35 litre of water for 25 kg bag of Cempatch FL90 Cempatch FL100 2.50 litre of water for 25 kg bag of Cempatch FL100		
Reaction to fire: BS EN 1504-3, Clause 5.5	Class A1		
Minimum application temperature:	5°C		

Note: Cempatch FL is available in 3 ranges.
Compressive strength results are evaluated by using 150 mm cubes.
Compressive strength and Flexural strength @ 1 day are under restrain.
Compressive strength and Flexural strength@ 7 & 28 days are under wet cure.

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Areas to be repaired with Cempatch FL 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.

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 FL to host concrete.

MIXING

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used. For Cempatch FL standard and Cempatch FL90 (3.35 - 3.50) litre of clean water should be added to clean container, and (2.5) litre for Cempatch FL100.

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.

PLACING AND FINISHING

Cempatch FL should be poured in a single continuous operation, within 25 minutes of mixing. The mixed materials should be poured slowly to prevent air entrapment.

CURING

As Cempatch FL 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 A.

CLEANING

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

Performance characteristics	EN 1504-3 requirement	Cempatch FL measured value
Compressive strength: EN 12190	≥ 45 MPa	≥ 90 MPa
Chloride ion content: EN 1015-17	≤ 0.05%	0.02%
Adhesive bond: EN 1542	≥ 2 MPa	≥ 2.25 MPa
Carbonation resistance: EN 13295	≤ control concrete MC (0,45)	Pass
Thermal compatibility Freeze-thaw EN 13587-1	≥ 2 MPa	≥ 2.25 MPa
Dangerous substance		complies with 5.4

PACKAGING

Cempatch FL is available in 25 kg bags.

THICKNESSES AND SIZE LIMITATIONS

Cempatch FL can be applied in a single application for large repair voids at thicknesses greater than 50 mm and up to 200 mm for Cempatch FL STD and FL90, while for FL100 it can reach up to 400 mm. For large areas, DCP Technical Office should be consulted.

YIELD

Cempatch FL STD: Approximately 12.5 litre per 25 kg bag. (80 bags/m^3).
Cempatch FL90: Approximately 12.0 litre per 25 kg bag. (83 bags/m^3).
Cempatch FL100: Approximately 11.5 litre per 25 kg bag. (87 bags/m^3).

STORAGE

Cempatch FL has a shelf life of 12 months from date of manufacture if stored at temperatures between 2°C and 50°C in original unopened bags.

If these conditions are exceeded, DCP Technical Department should be contacted for advise.

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CAUTIONS

HEALTH AND SAFETY

Cempatch FL 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 FL is nonflammable.

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- Surface treatments
- Grouts and anchors.
- Concrete repair.
- Flooring systems.
- Protective coatings.
- Sealants.
- Waterproofing.
- Adhesives.
- Tile adhesives and grouts.
- Building products.
- Structural strengthening.

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