

Cempatch HM

Non-shrink general purpose high strength repair mortar (Micro Concrete)



Description

Cempatch HM is a single component repair mortar. Cempatch HM 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 small 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 cementations repair mortar eliminates cracking.
- ▲ Easy to apply, single component, requires only addition of water.
- ▲ Extremely low permeability to water, providing excellent protection to steel reinforcements and host concrete.
- ▲ Can be used in mortar consistency for small repairs.
- ▲ Suitable for internal and external applications.
- ▲ Water vapour permeable.
- ▲ Does not contain corrosive substrates.

Method of Use

Substrate Preparation

All damaged and weak concrete should 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. In case of significant loss in the steel reinforcement cross section, the steel should 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 any grout loss.

Technical Properties:

Compressive strength:	≥ 60 MPa @ 7 days
ASTM C109/109M-11	≥ 70 MPa @ 28 days
Working time:	20 - 25 min @ 20°C 10 - 15 min @ 40°C
Expansion characteristics:	0.5 - 1%
ASTM C827/C827M-10	
Flexural strength:	≥ 8 MPa @ 28 days
BS 6319, Part 3:1990	
Colour:	Grey
Setting time:	
BS 4550	
	Initial 6 - 7 hr @ 25°C
	Final 9 - 10 hr @ 25°C
Water penetration:	≤ 10 mm
DIN 1048	
Fresh wet density:	2.25 ± 0.10 g/cm ³
Minimum application Temperature:	5°C

Compressive and flexural specimens should be kept under restrained conditions for the first 24 hours, followed by wet cure conditions.

Priming

All grit blasted steel reinforcements should be primed within 2 - 4 hours with one or two coats of zinc rich epoxy coating Repcoat ZR471 or one coat of reinforced protective coating (Repcoat 2C, formerly known as Cempatch R).

Areas to be repaired with Cempatch HM should be soaked with clean water for several hours before applying the repair mortar.

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

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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 sulphates to the repair patch, as well as providing bond for Cempatch HM to host concrete.

Mixing

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used.

4.25 litre of clean water for each 25 kg bag should be added to a 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.

Placing and Finishing

As the mixed mortar has high flowability characteristics, all shutters and formworks should be watertight. Cempatch HM should be poured in single continuous operation within 15 minutes of mixing.

The mixed material should be applied slowly from one point to prevent air entrapment. Ensure that the shutter will have outlets for extraction of the pre-soaking water and to prevent air entrapment during the mortar placement.

The shutter should be kept for a minimum of 24 hours after placement, during this period the unrestrained areas should be kept to a minimum due to the expansive nature of Cempatch HM.

Curing

As Cempatch HM 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 Cempatch AB , Setcrete 22, Sethard S or by curing wet hessian sheets covered with polyethylene sheets.

Cleaning

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

Packaging

Cempatch HM is available in 25 kg bags.

Yield

Approximately 13 litre/ 25 kg bag (77 bags/m³).

Thicknesses and Size Limitations

Cempatch HM can be applied in a single application for large repair voids at thicknesses between 10 mm and 100 mm. For greater thicknesses, 5 - 12 mm washed aggregate should be added at a percentage up to 60% from weight of Cempatch HM. DCP Technical Office should be consulted.

Approximately 13.5 litre/25 kg bag (74 bags/m³) for flowable consistency and 13 litre/25 kg bag (77 bags/m³) for mortar consistency.

Storage

Cempatch HM has a shelf life of 12 months from date of manufacture if stored at temperatures between 5°C and 45°C in original unopened bags.

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

Cautions

Health and Safety

Cempatch HM may cause irritation to skin or eyes.

In case of accidental contact with eyes, immediately flush with plenty of water and seek medical advise is necessary.

For further information refer to the Material Safety Data Sheet.

Fire

Cempatch HM is nonflammable.

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- ▲ Concrete repair.
- ▲ Flooring systems.
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- ▲ Sealants.
- ▲ Waterproofing.
- ▲ Adhesives.
- ▲ Tile adhesives and grouts.
- ▲ Building products.
- ▲ Structural strengthening.

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Note:

We endeavour to ensure that any information, advice or recommendation we may give in product literature is accurate and correct. However, because we have no control over where and how products are applied, we cannot accept any liability arising from the use of the products.

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