

Cempatch S

One component, high build, high strength, hand/wet-spray applied cementitious repair mortar



DESCRIPTION

Cempatch S is a hand/wet-spray applied, one component polymer modified and fibre reinforced repair mortar. Cempatch S is a blend of dry powders, selected aggregates and fibres which when mixed with water produces a thixotropic mortar suitable for vertical and overhead application.

APPLICATIONS

- » Repair of all types of structural concrete where high strength and extremely low shrinkage properties are required.
- » For the repair of vertical and overhead elements.
- » As a repair mortar for all structural elements in buildings, water retaining structures, industrial plants, bridges, etc.

ADVANTAGES

- » Shrinkage controlled polymer modified cementitious repair mortar.
- » Easy to apply, single component, requires only addition of water.
- » Extremely low permeability to water, providing excellent protection to steel reinforcements and host concrete.
- » Thixotropic properties allowing extra high build for vertical and overhead applications.
- » Suitable for internal and external application.
- » Water vapour permeable.
- » Suitable for use in contact with potable water.
- » Cost effective, hand applied no formwork is required.
- » Can be applied efficiently using wet spraying.
- » The cured mortar is impermeable to acid gases, waterborne chloride ions, and oxygen.
- » The low permeability of Cempatch S significantly slows down chemical attacks in aggressive environments.

STANDARDS

Cempatch S complies with:

- » The requirement of EN 1504-3 as structural repair mortar of Class R4 for repair principles 3.1, 3.3, 4.4, 7.1, and 7.2.

TECHNICAL PROPERTIES. W/P= 0.18:

Fresh wet density:	2.1 ± 0.1 g/cm ³
Minimum application temperature:	5°C
Setting time: EN 196-3	7 - 9 hr
Flexural strength: BS EN 12190	≥ 6 N/mm ² @ 28 days
VOC: ASTM D2369	≤ 5 g/ltr

Performance Characteristics	EN 1504-3 Requirement	Measured Value
Compressive strength: BS EN 12190	≥ 45 N/mm ²	≥ 50 N/mm ² @ 28 days
Chloride content: BS EN 1015-17	≤ 0.05%	≤ 0.04%
Adhesive bond: BS EN 1542	≥ 2 N/mm ²	≥ 2.25 N/mm ²
Thermal compatibility freeze-thaw: BS EN 13687-1	≥ 2 N/mm ²	≥ 2 N/mm ²
Carbonation resist- ance: BS EN 13295	≤ control concrete MC (0.45)	Pass
Elastic Modulus: EN 13412	≥ 20 GPa	≥ 20 GPa
Capillary Absorption:	≤ 0.5 kg/m ² .h ^{-0.5}	≤ 0.2 kg/m ² .h ^{-0.5}
Dangerous substance:	Complies with 5.4	

METHOD OF USE

SUBSTRATE PREPARATION

The perimeters of the repair area should be saw cut to a minimum depth of 10 mm to avoid feather-edging and to provide a square edge. All damaged and weak concrete should be cut back to reach sound concrete and/or to a minimum depth of at least 10 mm.



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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. In all cases, the steel should be clean and bright after cleaning.

Exposed reinforcement that is contaminated with chloride or other material which may cause corrosion should be water blasted with high pressure to provide a clean surface and remove the corrosion products.

In case of any oil and grease deposits, surfaces must be degreased using degreasing products, steam cleaning, or any other suitable method which assures the surface is free from any oil traces.

All surfaces must be clean and free from dust, oil, grease, paints, or any loose material, and the prepared area should be cleaned thoroughly by brush and/or compressed air.

Areas to be repaired with Cempatch S should be soaked with clean water before applying the repair mortar. All excess water should be removed prior to applying Cempatch S.

PRIMING

Reinforcing Steel Priming

If steel reinforcement is corroded, all corroded steel should be grit blasted and then primed within 2 - 4 hours with one or two coats of zinc rich epoxy coating Repcoat ZR.

Passive corrosion protection can be provided using Cempatch Primer alternatively.

Substrate Priming

Areas to be repaired with Cempatch S should be soaked with clean water before applying the repair mortar. All excess water should be removed prior to applying Cempatch S.

Substrate Priming using a primer (Optional)

Areas to be repaired with Cempatch S should be soaked with clean water before applying Cempatch Primer and repair mortar. All excess water should be removed prior to applying Cempatch Primer.

Use a stiff brush or spray gun to apply a thick coat of Cempatch Primer (As a bonding agent slurry) to presoaked surfaces. Application of Cempatch S repair mortar should take place while the bond coat is still wet (tacky).

MIXING

To ensure proper mixing, a mechanically powered mixer or drill fitted with suitable paddle should be used. 4.5 litre of clean water should be added to clean container.

The 25 kg Cempatch S powder is then added slowly to the water while mixing continuously with low speed mixer/drill (400 - 600 rpm). Mixing time should be continued for 3 minutes until uniform consistency is obtained.

Note: Always mix full bags. Do not mix partial bags.

PLACING AND FINISHING

Cempatch S can be applied by trowel or hand. The mixed mortar should be applied using firm pressure to fully compact the mortar to ensure good adhesion with the steel reinforcements and the substrate. Finishing and levelling should be carried out initially by a straight edge or a steel float. Final finishing should be carried out using wooden or plastic float followed by a damp sponge. However, the completed surface should not be overworked.

Spray Application

Cempatch S can be effectively applied using a wet spray method, which is ideal for covering large repair areas. This approach allows for faster application and increased thickness compared to traditional hand-trowelling.

After spray application, Cempatch S may need to be finished and [cut back] to the required profile using a steel float and then finished with damp sponges as described before.

Notes:

- » *Cempatch S should not be applied at a thickness less than 10 mm.*
- » *If any sagging or slumping occurs, Cempatch S should be completely removed and reapplied at a lower thickness.*
- » *The quality of the application is affected by the diameter of the nozzle exit aperture, apertures of 10, 12 & 14 mm are recommended.*

CURING

As Cempatch S is a cementitious based material, it should be cured in a similar method to concrete. Appropriate curing methods include using Setseal 6 curing membrane, Setseal AW309, or polythene sheeting.

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CLEANING

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

PACKAGING

Cempatch S is available in 25 kg bags.

THICKNESSES AND SIZE LIMITATIONS

Cempatch S can be applied in a single application for sections up to 60 mm thick in overhead applications and 80 mm thick in vertical applications.

Thickness should not be less than 10 mm deep in all applications. Cempatch S repair area should not exceed 2.5 m² in single application.

Additional thickness can be achieved by applying multiple layers. The surface of each intermediate layer should be comb-scratch keyed.

CAUTION

- » 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 14 – 14.5 litre per 25 kg bag.

STORAGE

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

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

CAUTIONS

HEALTH AND SAFETY

Cempatch S may cause irritation to skin or eyes. In case of accidental contact with eyes, immediately flush with plenty of water for at least 10 minutes and seek medical advice if necessary.

For further information, refer to the Material Safety Data Sheet.

FIRE

Cempatch S is nonflammable. Repcoat ZR is flammable. Ensure adequate ventilation. Do not use near a naked flame and do not smoke during use. Extinguish with CO₂ or foam. Do not use a water jet.



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04-0010-UK-A-2025