Cempatch SD300

Spray applied, high build, one component, cementitious repair mortar for dry mix shotcrete application

DESCRIPTION

Cempatch SD300 is a single component polymer modified and fibre reinforced repair mortar for dry mix shotcrete application. Cempatch SD300 is a blend of dry powders, selected aggregates, reinforcing fibres, microsilica and high quality additives when mixed with water will produce a high build, thixotropic, highly resistant, alkali free repair mortar suitable for dry mix shotcrete machine spraying on vertical and overhead application.

Cempatch SD300 is designed mainly to be applied using dry mix shotcrete machines, it can be also applied by hand to repair small areas of damaged structural elements when needed.

Cempatch SD300 is available in the accelerated setting time grade "Cempatch SD300A".

APPLICATIONS

- Large area repairs for all structural elements in buildings, water retaining structures, industrial plants, bridges, etc.
- Repair of fire damaged structures.
- Lining and repair of tunnels.
- Cathodic Protection (CP) overlays.
- Corrosion protection at marine areas when used in conjunction with Cempatch Primer M (cementitious bonding slurry and steel primer).

ADVANTAGES

- High early mechnical strength.
- Shrinkage controlled polymer modified cementitious repair mortar. Reduces the risk of cracking due to shrinkage and ensures full contact with host concrete and load transfer in structural repair situations.
- 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.
- Cost effective, spray applied no formwork is required.
- Can be spray applied allowing for rapid application of large areas with minimal rebound.

STANDARDS

Cempatch SD300 complies with the requirement of EN 1504-3 as structural repair mortar of Class R4.

TECHNICAL PROPERTIES @ 0.14 W/P RATIO::	
Colour:	Grey
Fresh wet density:	2.25 ± 0.10 g/cm³
Application temperature:	5 to 35°C
Flexural strength: ASTM C348	≥ 6 MPa @ 28 days
Setting time: ASTM C266	
Cempatch SD300	Initial 5 - 6 hr Final 14 - 15 hr
Cempatch SD300A	Initial 6 - 15 min Final 20 - 25 min
Reaction to fire: BS EN 1504-3, Clause 5.5	Class A1
VOC: ASTM D2369	≤ 5 g/ltr

Performance Characteristics	EN 1504-3 Requirement for Class R4	Measured value
Compressive strength: EN 12190	≥ 45 MPa	≥ 45 MPa
Chloride ion content: EN 1015-17	≤ 0.05%	≤ 0.05%
Adhesive bond: EN 1542	≥ 2 MPa	≥ 2 MPa
Carbonation resistance: EN 13295	≤ control concrete MC (0,45)	Pass
Thermal compatibility Freeze-thaw: EM 13587-1	≥ 2 MPa	≥ 2 MPa
Dangerous substance:		complies with 5.4

DCP Saudi Co.
Sulay, Industrial Area, Istanbul St., Riyadh
Industrial City 3, Jeddah
Saudi Arabia
info.saudi@dcp-int.com
www.dcp-int.com

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LIMITATION

- Apply only using a dry mix shotcrete machine where the water is mixed with the material at the nozzle.
- Do not apply on smooth surfaces.
- Do not add any additives, cement or aggregate.
- Do not apply if ambient or substrate temperatures are below 5°C.
- Do not expose freshly repaired surfaces to heavy loads for the first 24 hours.

METHOD OF USE

SUBSTRATE PREPARATION

All damaged and weak concrete should be cut back to reach sound concrete and/or to a minimum depth of at least 10 mm. 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 10 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.

PRIMING

All grit blasted steel reinforcements should be primed within 2 to 4 hours with one or two coats of zinc rich epoxy coating Repcoat ZR. Areas to be repaired with Cempatch SD300 should be soaked with clean water before applying the repair mortar. All excess water should be removed prior to applying Cempatch SD300.

Also, the Migrating Corrosion Inhibitor Cempatch Primer M can be used as a steel protection primer and as a bonding agent.

APPLICATION

- Turn on the dry mix shotcrete machine.
- Empty the bags of Cempatch SD300 directly into the hopper of the dry mix shotcrete machine.
- The water mixed with the dry Cempatch SD300 is controlled by the operator at the nozzle. A minimum water powder ratio of 0.13 and a maximum of 0.15 should be used. The mentioned low w/p ratio is to minimize rebound and dust. Excess water will lead to sagging.
- Apply up to 150 mm in a single layer. Adding reinforcement wire mesh every 30 mm is an added value for extra strengthening.
- For total thicknesses above 150 mm apply in several coats, each previous coat applied should be dried and kept rough. Prior to applying the subsequent layer wet the dried coat lightly with water.

CURING

As Cempatch SD300 is a cementitious based material, it should be cured in a similar method to concrete. Curing can be conducted by using Setseal range of curing compounds or by wet hessian sheets covered with polyethylene sheets starting after final setting time.

HIGH AND LOW TEMPERATURE APPLICATION

- Cempatch SD300 can be applied at a temperature range of 5°C to 35°C.
- At high ambient temperatures (above 35°C), make sure that the product is stored in shaded areas prior to use.
- Accelerated heating methods are not to be used under any circumstances.
- Material should not be used at temperatures below 5°C.

CLEANING

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

PACKAGING

Cempatch SD300 is available in 25 kg bags.

THICKNESSES AND SIZE LIMITATIONS

Cempatch SD300 can be applied in a single application for sections up to 150 mm thick in vertical and 100 mm in overhead applications. Adding reinforcement wire mesh every 30 mm is an added value for extra strengthening.

YIELD

Approximately 12.50 litre/25 kg bag. (80 bags/m³).

STORAGE

Cempatch SD300 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, DCP Technical Department should be contacted for advise.

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CAUTIONS

HEALTH AND SAFETY

Cempatch SD300 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 advise if necessary.

For further information refer to the Material Safety Data Sheet.

FIRE

Cempatch SD300 is nonflammable.

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- Adhesives.
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- Building products.
- Structural strengthening.

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