

MonniRep HCS

High Compressive Strength Repairing Mortar

Product Description

MonniRep HCS is a one component polymer modified cement-based mortar, designed as a high compressive strength repairing mortar. It is composed of high resistance hydraulic binders, silica, graded aggregates and special additives, which gives a high strength, non-shrink mortar, fit to be applied vertically in a large thickness.

Uses

MonniRep HCS is designed to provide a structural grade repair mortar particularly in situations where abrasion resistance and imperviousness are required such as:

- ▶ General concrete repair
- ▶ Repairs to structural concrete elements, e.g. reinforced beams and columns
- ▶ Highly trafficked surfaces, particularly transition strips adjacent to mechanical bridge joints.
- ▶ Repairs in marine environments or other situations, where concrete is in contact with chloride or Sulphate solutions
- ▶ Floor repairs in industrial areas, especially if exposed to oil or lubricants
- ▶ Honeycombing repairs
- ▶ Pile cap re-profiling and treatment

Advantages

- ▶ Easy to mix and apply
- ▶ Excellent bond strength to concrete substrate.
- ▶ Good abrasion resistant
- ▶ Shrinkage-compensated
- ▶ High compressive strength
- ▶ Low permeability providing protection against the ingress of Chlorides and Carbon Dioxide

Usage Instructions

Concrete Preparation

The surface of the concrete to be repaired should be sound, clean and uncontaminated. The decayed or damaged area to be repaired should be marked with a marker. Cut the marked area to a depth of at least 10mm using a hand held concrete saw or disc grinder to avoid feather edging and to provide a square edge. Break out or chip the complete repair area down to sound base using sharp tools or chipping hammer.

Oil and grease deposits should be removed by stiff brushing, detergent scrubbing with a heavy-duty cleaner/degreaser, steam cleaning.

Steel Preparation

Any corroded steel in the repair area must be fully exposed. All exposed reinforcement shall be cleaned of corrosion products by wet grit blasting or other approved means to achieve a clean and bright finish. In case that reinforcing bars, section is reduced due to oxidization, integrate them with additional bar reinforcement.

Steel Priming

The cleaned steel should be coated within 3 hours. Apply one coat of MonniRep CS, a corrosion proof cementitious based primer or MonniZinc, a two component Zinc rich epoxy primer, continuously with brush onto the cleaned bar reinforcement ensuring that the whole steel surface area is completely covered. Allow to dry before proceeding with the repair.

Concrete Priming

If the concrete deterioration is due to Chloride attack, it is recommended to use MonniBond E50, an epoxy bonding agent. It will cure to form a barrier against Chloride ions.

However, if the cause is Carbonation, dampen the surface with clean water (avoiding free standing water) and apply thin coat of MonniLatex ACR, an Acrylic bonding agent.

MonniRep HCS must be applied before the bonding agent dries while it's still tacky to achieve a better bond between the fresh and cured section.

Mixing

For mixing process, a slow speed drill (200- 300rpm) fitted with a suitable paddle is recommended. Place 3.5liters of cold clean water in the mixing bucket. With the drill in operation, add the entire content of the 25 kg bag of MonniRep HCS while mixing continuously till a uniform lump free consistency mix is achieved. Powder must always be added to water.

Allow the obtained mix to stand for about 3 minutes and then remix before application. Under no circumstances should partial mixing be considered.

Application

Apply the product manually with a trowel or spatula to ensure thorough compaction around the reinforcement and against the edges of the reinstatement area. The repair then can be finished with a steel trowel. The product can be applied up to 60 mm in thickness in vertical, and in 100 mm layers in small pockets or horizontal plane. The material should not be applied at less than 10 mm thick layer.

Use a steel trowel for the finishing touch.

Curing

The repaired area shall be cured in accordance with good concrete curing practice and protected from drying winds, sun or excessive heat. Curing shall be done with non-degradable curing compound MonniCure A R. Alternatively; a wet hessian cloth covered with polyethylene sheet can also be employed. Curing should begin as soon as final finish is achieved.

In fast drying conditions, supplementary curing with Polythene Sheets must be used.

Cleaning

MonniRep HCS should be removed from tools and equipment and mixers with clean water immediately after use. Cured material should be removed mechanically.

Equipment used for applying MonniBond E50, the epoxy bonding agent should be cleaned with Monneli Solvent 10.

Technical Data

Category	Typical Values
Appearance	Grey Powder
Wet Density	2.15 Kg/L @ 25°C
VOC	0.1 g/L
Thickness per Coat:	
Vertical:	10-60 mm
Overhead:	10-35 mm
Small Pockets & Horizontal:	10-100 mm
Granulometry	0-3.5 mm
Compressive Strength (ASTM C579)	≥ 55 N/mm ² @ 7 days ≥ 75 N/mm ² @ 28 days
Flexural Strength (ASTM C580)	≥ 11 N/mm ² @ 28 days
Tensile Strength (BS 6319 Part 7)	≥ 3 N/mm ² @ 28 days
Water Absorption (BS 1881)	4%
Drying Shrinkage (ASTM C157-93)	<300 microstrain @ 7 days <500 microstrain @ 28 days
Rapid Chloride Permeability (ASTM C1202)	Low
Workability	> 30 minutes @ 25°C
Application Temperature	5°C up to 35°C

All values are subject to 5-10% tolerance

Standards Compliance

- ▶ ASTM C579
- ▶ ASTM C580
- ▶ ASTM C157-93
- ▶ ASTM C1202
- ▶ BS 6319 Part 7
- ▶ BS 1881

Yield

12.9 Liters / 25 Kg bag with 2.8 Liters water addition

Packaging

MonniRep HCS is packed in 25 Kg bags

Shelf Life & Storage

Store in a dry covered place. In these conditions the product maintains its stability for 12 months.

Recommendations

- ▶ Do not add water once the mix has begun to set
MonniRep HCS should not be exposed to running water either during application or prior to the final set.
- ▶ Do not mix the bags partially.
- ▶ In warm weather, store the material in cool place.
- ▶ Make sure to use cool water to keep the mixed mortar temperature below 30 °C.
- ▶ Do not apply the product at temperature less than +5°C

Health & Safety

MonniRep HCS can be harmful to skin as it contains cement powders which may release alkalis when mixed with water. During application, wear appropriate protective clothing, goggles, gloves and respiratory equipment if necessary.

In case of contact with skin, rinse with water and again wash thoroughly with soap and water. In case of contact with eyes, rinse with plenty of water and seek medical advice accordingly.

If ingested, obtain a medical attention immediately.

Legal disclaimer

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