Technical Data Sheet

BluCem HB55

SPRAYABLE CEMENTITIOUS SHOTCRETE

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DESCRIPTION

BluCem HB55 is a one component cementitious powder blend which requires only the addition of water to form a sprayable mortar.

USES

BluCem HB55 is designed as a sprayable mortar for reinstatement of both old and new structures. BluCem HB55 is compatible with structural concrete elements with concrete strength greater than 40MPa. All structural repairs should be designed and approved by a Structural Engineer.

ADVANTAGES

- Fast setting and rapid strength gain
- Sprayable with negligable rebound
- Low drying shrinkage
- High build capacity - even overhead
- Excellent workability for hand finishing
- Minimal dust emission

CONCRETE PREPARATION

All defective host substrate must be removed prior to application. Defective material includes cracked or structurally weakened surfaces and also chloride contaminated and carbonated concrete. A concrete corrosion expert must be consulted for critical projects or structural applications. Host concrete must be roughened and aggregate exposed to ensure good bond. High pressure water blasting or mechanical chipping of the surface is recommended for this purpose. All surfaces must be free of dust, oils and surface contaminants. This may require steam cleaning or high pressure water blasting if site conditions permit. A perimeter edge of at least 10mm depth must be provided around the area for application. Priming using BluCem AP10 is recommended. Priming by saturation of the surface using water prior to application is also acceptable. Priming with epoxy primers or other products which prevent vapour transmission is not recommended.

STEEL PREPARATION

Following removal of all defective concrete, any partially exposed reinforcing bars shall be fully exposed to a depth of 20mm behind the bar. If the bar has lost more than 20% of its original diameter then it should be replaced and the Structural Engineer must be consulted. Where the original reinforcement is retained it must be cleaned to a standard surface purity of Sa 2.5 for chloride contaminated concrete and Sa 2.0 for carbonated concrete.
This is best achieved by wet blasting or abrasive blasting. If chloride contamination is present then high pressure wet blasting is the only acceptable method of cleaning. Priming of reinforcement is generally not required. If the steel will be exposed to the atmosphere for several days after cleaning then an acceptable form of priming would be to mix BluCem HB55 into a slurry using BluCem AP10 and apply a cement rich coating to the steel surface.

MIXING AND APPLICATION

For wet applications, add BluCem HB55 to potable water in a clean vessel using a high shear mechanical mixer for at least three minutes. Do not mix more material than can be placed in 15 minutes. Add enough water to achieve the desired consistency within the water ratio limits specified in this data sheet. For dry applications, empty the dry powder directly into the hopper and adjust water and air at the nozzle for suitable consistency. Up to 150mm may be applied for each pass.

CURING

It is recommended that the final surface finish layer is coated with curing compound or otherwise maintained wet for at least three days.

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R01/2015

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PRODUCT DATA

Packaging:	20kg or 1000kg bags
Mixing Ratios:	2.0 - 2.4 litres of water per 20kg bag of BluCem HB55
Yield:	~9.4 litres per 20kg bag (applied by trowel)
Set Times:	Initial - 110 minutes (AS1012.18) Final - 180 minutes (AS1012.18)
Mass per Unit Volume:	2270kg/m^3 (AS1012.5)
Build Scope:	Up to 300mm in one layer
Compressive Strength:	4MPa @ 8 hours (AS1478.2 Appendix A) 20MPa @ 24 hours 55MPa @ 7 days 65MPa @ 28 days
Coefficient of Thermal Expansion:	15μstrain/°C
Drying shrinkage	<700 μstrain @ 28 days (AS1478.2 Appendix B)
Electrical Resistivity	10.1 kohm-cm @ 56 days (FM 5-578)
Modulus of Elasticity	34.5 GPa @ 28 days (AS1012.17)
Chloride Content:	0.01% (AS1012.20)
Clean Up:	Clean tools and surfaces using water prior to curing
Storage:	Store in cool dry conditions Shelf life is 12 months

Test results shown were at 2.1 litres per 20 kg bag and with a mixing temperature of 23°C