Technical Data Sheet

BluCem HB60

SPRAYABLE RAPID SETTING CEMENTITIOUS SHOTCRETE

BluCem HB60 is a one component cement powder which requires only the addition of water to form a concrete repair cementitious mortar.

BluCem HB60 is a sprayable, highly durable product suitable for civil engineering applications. BluCem HB60 incorporates marine grade cement systems, specially graded aggregates and advanced cement additives to form a cementitious mortar with high sulphate and chloride resistance, low drying shrinkage, ultra low chloride permeability, high strength and high bond.

Application Advantages

- Fast setting
- Rapid strength gain
- Negligible rebound
- Ultra high build in one pass
- Minimal dust emission
- Easy dry spraying

Lifecycle Advantages

- High sulphate and chloride resistance
- Low drying shrinkage
- High strength
- High adhesion

About the Product

BluCem HB60 had been developed using a blend of carefully selected aggregates combined with sulphate and chloride resistant cements to form the basis of this very dense, high build repair mortar. The selected aggregates are custom graded by Bluey Technologies to create maximum interlocking during dry spraying to build depths of several hundred millimetres in one pass, creating a strong and highly resistant structural repair mortar. BluCem HB60 is a high performance repair mortar which performs very well in marine environments. The special cements allow placement during low tide to be ready for submersion several hours later.

Application Solutions

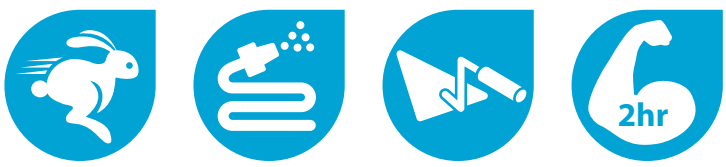
- Concrete repair
- Structural repair of beams
- Columns and slabs
- Floor repair and topping
- Repairs to airport runways

Project Specification Clause

SPRAYABLE RAPID SETTING CEMENTITIOUS SHOTCRETE - The concrete repair cementitious mortar used for this project shall be a one component cement powder which requires only the addition of water to form a durable concrete repair product. It shall be a pre-blended product that has independent testing to validate the performance outlined in the technical data table on the following pages.
BluCem HB60 manufactured by Bluey Technologies or equivalent shall be accepted.

Project Examples

Airport construction, bridge repair, building repairs, dam construction and repair, jetty construction and repair, concrete structures, rail construction, rail repairs and shutdowns, retaining walls, sea wall repair and maintenance, sewer repair and lining, tunnel lining, tunnel rock support, wharf repair and construction.



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Application Specification

CONCRETE PREPARATION

1.1 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.

1.2 Host concrete must be roughened and aggregate exposed to ensure good bond. Removal of laitance is important to ensuring good bond. Shot-blasting, scarification, mechanical chipping or high pressure water blasting may be used to achieve a recommended minimum CSP3 surface finish. It is important to select a preparation method which is considerate to the application environment, host concrete, and surface finish requirements. The correct balance between roughening the surface and not causing further micro-cracking and damage should be trialled and assessed using adhesion test methods following initial preparation trials.

1.3 All surfaces must be free of dust, oils and surface contaminants. This may require steam cleaning or high pressure water blasting.

1.4 A perimeter edge of at least 10mm depth must be provided around the area for application.

1.5 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

2.1 Following removal of all defective concrete, any partially exposed reinforcing bars shall be fully exposed to a depth of 20mm behind the bar.

2.2 If the bar has lost more than 20% of its original diameter then it should be replaced and the Structural Engineer must be consulted.

2.3 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.

2.4 If chloride contamination is present then high pressure wet blasting is the only acceptable method of cleaning. Priming of reinforcement is generally not required.

2.5 If the steel will be exposed to the atmosphere for several days after cleaning then an acceptable form of priming would be to mix GP cement into a slurry using BluCem AP10 and apply a cement rich coating to the steel surface.

MIXING

3.1 For dry applications, empty the dry powder directly into the hopper and adjust water and air at the nozzle for suitable consistency.

PUMPING

4.1 Special pumping and mixing equipment are required for BluCem HB60. Various models of batch mixers and continuous mixers are available for use. It is important to match your application's specifics with the capabilities of the mixer and pump. Bluey Technologies are able to recommend the right mixer for your project.

4.2 For dry spraying applications, empty the dry powder directly into the hopper and adjust water and air at the nozzle for suitable consistency.

4.3 Following completion, dispose of excess production material in consideration of the environment. Carefully wash out machinery and surrounding areas.

APPLICATION TEMPERATURES

5.1 As with the water temperature, the higher the air temperature the more quickly the grout hydrates and sets. Bluey Technologies specify mixing times and set times at an ambient temperature of 20°C. These times vary with temperature fluctuations, and adjustments will be required to compensate for this. Exposing the pumping hoses to the sun on a hot day accelerates the product's set time. In some cases it may be necessary to cool the material, the mix water, or even the hose itself during the process and pre-planning the storage of all materials to keep the temperature as low as possible.

CURING

6.1 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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Product Data

Please refer to Important Notice on following page

Packaging	20kg, 1000kg, 1200kg bags
Water Addition	1.8 - 2.2 litres per 20kg bag
Yield	9.4 litres per 20kg @ 11% water
Build Scope	Up to 300mm in one pass vertical; up to 150mm in one pass overhead
Workability Time	16 minutes @ 20°C
Maximum Particle Size	3.0mm

TESTED CHARACTERISTIC	STANDARD	RESULT
Portland Cement	AS3972	Complies
Aggregates	AS2758.0	Complies
Compressive Strength	AS1478.2	1.8 litres water per 20kg 3MPa @ 2 hours 20MPa @ 4 hours 60MPa @ 24 hours 80MPa @ 7 days 90MPa @ 28 days
Drying Shrinkage	AS1012.13	180μstrain @ 7 days 250μstrain @ 28 days
Electrical Resistivity	Taywood-Warner 4 Probe	8000ohm-cm @ 7 days 17000ohm-cm @ 28 days
Setting Time	AS1012.18	Initial set - 29 minutes Final set - 43 minutes
Fresh Wet Density	AS1012.5	2220kg/m^3

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