

BluCem HS200A

PT CABLE GROUT ADDITIVE

BluCem HS200A is a one component powder additive which requires the addition of cement powder and water to form an ultra flow cementitious grout.

BluCem HS200A is a pumpable, high strength additive suitable for civil engineering applications. BluCem HS200A incorporates advanced additives to form a cementitious grout which is free of alluminate and metallic expansion agents or methocel based additives providing a product suitable for 100 year design life applications.

Application Advantages

- Ultra high flow
- Zero bleed
- Rapid strength gain
- Workable for several hours

Lifecycle Advantages

- NSW RMS approved
- Aluminium and metallic expansion agent free
- Methocel additive free
- Suitable for 100 year design life
- Protection of high tensile steel elements

About the Product

BluCem HS200A is a blend of the most advanced superplasticisers and suspension agents available which can be used to create an exceptionally high performance fluid grout. The additive allows the grout to be applied in critical applications such as post-tension cable grouting and ensures full encapsulation of the duct without bleed, segregation or presence of voids. BluCem HS200A is one of the most advanced, aggregate-free fluid grouts available and is the preferred grout for many major road authorities and government utilities.

Application Solutions

- Rock bolting
- General grouting
- Soil and rock grouting
- Post tension cable grouting
- Rock fissure grouting
- Precast grouting
- Sand permeation

Project Specification Clause

PT CABLE GROUT ADDITIVE - The ultra flow cementitious grout used for this project shall comprise of cement powder and powder additive which requires only the addition of water to form a durable ultra flow product. The additive shall be a pre-blended product that has independent testing to validate the performance outlined in the technical data table on the following pages. The additive shall be free of aluminium and metallic expansion agents and methocel additives. BluCem HS200A manufactured by Bluey Technologies or equivalent shall be accepted.

Project Examples

Bridge tensioning, car park deck tensioning, pile grouting, tunnel rock support, road cuttings.

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Application Specification

MIXING

- 1.1 Measure and place approximately 90% of the desired water into the approved mixing vessel. Start mixer and slowly add 50% cement powder.
Add BluCem HS200A Powder and mix for approximately 1 minute. Slowly add the remaining 50% of cement and 10% water.
Additional water can be added to a total volume not exceeding the total allowable limit. Mix for a further 3 - 4 minutes to adequately dissolve the BluCem HS200A additive and achieve flowable consistency.

PUMPING

- 2.1 Once the grout has been mixed you need an effective pumping method to deliver it to the area of application. Various models of batch mixers and continuous mixers are available for use, all with varying specifications. 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.
- 2.2 Prior to pumping grout, rinse the mixer and charge the pump hopper with sufficient water to flush and cool the pump and all grout lines thoroughly. Check to ensure that all lines and hoses are clear and unobstructed. Once grout is mixed, it is important to keep it agitated continuously prior to pumping. Although, this product has a long pot life, if the grout is allowed to sit then it will 'gel' and may become more difficult to pump.
- 2.3 Once the site is ready for grout placement, commence pumping. It is important to pump continuously and avoid the formation of cold joints.
- 2.4 Following completion, dispose of excess production material in consideration of the environment. Carefully wash out mixer tanks and agitators into the pump hopper and pump the resulting washout material through the grout hoses to a suitable disposal site. Drain any water out of the lines and hoses. Clean down the machinery and surrounding areas.

APPLICATION TEMPERATURES

- 3.1 The mix water's temperature should be kept as low as possible to prevent the grout from hydrating too rapidly.
- 3.2 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.
- 3.3 High-shear mixing can add 1 to 2°C per minute of mixing. In order to minimise this effect, add all ingredients to the mixer as quickly as possible and minimise prolonged batch-mixing procedures.
- 3.4 It is estimated that every 10°C increase in temperature will halve the product set time. Likewise every 10°C reduction will double the set time. These set time variances may have detrimental consequences for the final set product and Bluey Technologies should be consulted where extreme temperatures are anticipated.

APPLICATION

- 4.1 BluCem HS200A may be poured or pumped into place. Check ducts and forms for leaks prior to mixing and application of grout. Mix at low speed during pumping and placement to maintain work life. High speed mixing should be avoided during placement to prevent temperature rise of the mixed grout.

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Product Data

Please refer to Important Notice on following page

Packaging	10kg bags added to 200kg of GP cement
Water Addition	63 litres for 30% water 69 litres for 33% water 76 litres for 36% water 80 litres for 38% water
Yield	128.0 litres per 210kg @ 30% water 135.0 litres per 210kg @ 33% water 140.0 litres per 210kg @ 36% water 144 litres per 210kg @ 38% water
Application Thickness	Refer to Bluey Technologies for advice and approval on pour thicknesses with dimensions exceeding 100mm
Pump Life	60 - 120 minutes @ 20°C
Maximum Particle Size	45 microns

TESTED CHARACTERISTIC	STANDARD	RESULT*
Post Tensioning Requirements	RMS R64	Complies
Compressive Strength	ASI478.2 Appendix A	63.0 litres water per 210kg 40MPa @ 24 hours 90MPa @ 7 days 100MPa @ 28 days 67.0 litres water per 210kg 30MPa @ 24 hours 80MPa @ 7 days 90MPa @ 28 days 76.0 litres water per 210kg 20MPa @ 24 hours 70MPa @ 7 days 80MPa @ 28 days
Bond Strength (By Pull Off)		0.5 - 1.0MPa Unprimed concrete 0.8 - 1.5MPa Primed concrete
Chloride Content	ASI012.20	<0.01%
Expansion	ASTM C940	<0.2% @ 30% water
Change in Height	ASTM CI090	<0.18% @ 28 days
Bleeding	ASTM C940	Zero @ 30% water
Setting Time	ASI012.18	Initial set - 240 minutes Final set - 300 minutes
Fresh Wet Density	ASI012.5	2100kg/m ³ @ 30% water 2000kg/m ³ @ 36% water
Flow Characteristics	ASI478.2 Appendix C	5 - 20 seconds (Flow cone)
Change in Flow Characteristics	ASI478.2 Appendix C	<3.0 seconds change in 45 minutes
Modulus of Elasticity	ASI012.17	22.4GPa

* The values shown in this table are based upon laboratory testing using a typical GP Cement added to HS200A. Note that results will vary depending upon the source, quality and age of cement used in the blend. All results shall be verified on site prior to commencement.

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Contact Bluey

HEAD OFFICE QLD

1300 0 BLUEY | qld@bluey.com.au

bluey.com.au

NSW

nsw@bluey.com.au

VIC

vic@bluey.com.au

SA

sa@bluey.com.au

WA

wa@bluey.com.au

TAS

tas@bluey.com.au

ACT

act@bluey.com.au

NT

nt@bluey.com.au

NZ

nz@bluey.com.au

UK/EUROPE

bluey@bluey.ie

ASIA PACIFIC

sales_sg@quicseal.com

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