Blu**Cem** FSC fast set concrete



Blu**Cem** FSC is a cement binder specifically formulated to be used in concrete mixes where high early strength is required.

BluCem FSC has been designed as a cementitious binder that can be mixed with coarse and fine aggregates to produce a rapid-set concrete. BluCem FSC is suitable for batching near to site, in transit mixers or volumetric mixers, for fast placement where development of high early strength for early return to service is required. The product is designed to be used with BluCem Addflow and BluCem AddSlow additives for set time and flow control during application.

Application Advantages

- Suitable for a range of mix designs and water ratios
- Workability control
- High early flexural and compressive strengths
- Low carbon footprint

Lifecycle Advantages

- 100 year design life
- Free of calcium chloride or nitrate accelerators
- Engineered alkalinity
- Very low drying shrinkage
- RMS Approved
- Low in soluble alkali
- No residual sulphates

About the Product

BluCem FSC is a highly durable, CSA based, cementitious powder binder which is blended with aggregates to form a high early strength gain concrete. BluCem FSC does not contain chloride or lime based accelerators to achieve its early strength. For added durability, the product also utilises engineered alkalinity to inhibit corrosion and protect reinforcing steel. BluCem FSC is specifically designed to be applied using volumetric based continuous mixers. The powder blend has been formulated to eliminate segregation during transport and provide consistent, repeatable results throughout large volume applications. BluCem FSC is designed for use in construction of concrete structures and pavements where only a short window of time is available to complete the works and return the asset to service.

Application Solutions

- Airport runways
- Concrete road pavements/rail bridges
- Car parks

Project Specification Clause

FAST SET CONCRETE - The cement for this project should be based on a calcium sulpho-aluminate cement system which requires only the addition of aggregates and water, to a maximum of 0.4:1, to provide a durable concrete with high strength gain in the first few hours after mixing. It shall be a cement product that has independent testing to validate the performance outlined in the technical data table on the following pages. BluCem FSC manufactured by Bluey Technologies or equivalent will be accepted. To meet durability requirements, the fast set cement shall not contain chloride or lime based accelerators.

Project Examples

Airport pavement replacement, freeway pavement replacement, sewer pump station remediation, process plant structures, emergency repairs to damaged pavements, car parks etc.



- Sewer structures
- Industrial process plants and mining infrastructure
- Precast concrete panels



Blu**Cem** FSC FAST SET CONCRETE

Application Specification

MIX DESIGN

- 1.1 Select suitable coarse and fine aggregates.
- 1.2 Design a concrete mix within the water cement ratio and powder proportion ranges using BluCem FSC.
- 1.3 Carry out laboratory trials to validate work time, workability and early strength gain targets.

TRANSIT MIXER

- 2.1 Use BluCem FSC.
- 2.2 Erect access platform for safe unloading of bulk bags of BluCem FSC into mixer or use a cement powder unloader with hopper and elevating screw conveyor.
- 2.3 Load potable water into mixer.
- 2.4 Load aggregates into mixer.
- 2.5 Load BluCem FSC powder into mixer.
- 2.6 Travel to pour location while mixing.
- 2.7 High speed mix for three minutes.
- 2.8 Discharge concrete into place, vibrate and finish as required within the work time established by trial mix.

VOLUMETRIC MIXER

- 3.1 Use BluCem FSC loaded into the powder bins of the Volumetric mixers.
- 3.2 Load potable water, aggregates and BluCem FSC into the mixer storage compartments in a safe manner.
- 3.3 Locate mixer beside pour location.
- 3.4 Mix concrete volumetrically and discharge.
- 3.5 Vibrate and finish as required within the work time established by trial mix.

Blu**Cem** FSC FAST SET CONCRETE



Product Data

Please refer to Important Notice on following page

Packaging	20kg, 1000kg, 1200kg bags	
Water to Cement Ratio	0.3:1 - 0.4:1	
Powder Addition	350 - 550kg per m ³ concrete	
Working Time	20 - 30 minutes @ 20°C	
BluCem AddFlow Dosage	0.2 litre - 1.0 litre/100kg powder	
BluCem AddSlow Dosage	Refer to AddSlow TDS for rates	

TESTED CHARACTERISTIC	standard	RESULT
Compressive Strength	AS1012.9	I0MPa @ 2 hours I5MPa @ 3 hours 20MPa @ 4 hours 45MPa @ 24 hours 50MPa @ 7 days 70MPa @ 28 days
Flexural Strength	AS1012.1	2.0 - 3.0MPa @ 2 hours 3.0 - 4.0MPa @ 3 hours 4.0 - 5.0MPa @ 4 hours
Chloride Content	ASI012.20	Less than 0.005%
Shrinkage	AS1478.2	Less than 300 μ m
pH Value		>11pH @ 28 days >11pH @ 900+ days

Note: The values shown in this table are based upon laboratory testing using a typical bluey mix design and aggregates. Note that results will vary depending upon the source, quality and shape of aggregates used in the blend. All mix designs and results shall be verified on site prior to commencement.

The work time and early strength gain using BluCem FSC are a function of the temperature of the mix water, aggregates and powder at the time of batching. Consult with Bluey before placement of concrete using BluCem FSC where temperatures are below 8.0°C and above 35.0°C.

Technical Data Sheet





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