Fosroc®
Conbextra® UW

constructive solutions

Formulated anti-wash out, specialist grout for underwater grouting applications

Uses

Conbextra UW is used for free flow or pumped grouting applications underwater or in tidal zones. There will be no significant 'wash-out' of the cement phase. Applications include bridge columns, quay pillars, concrete piling, slipways and dams.

Advantages

- No risk of significant 'wash-out' of cement phase when placed underwater
- Displaces water effectively
- Class A - Gaseous expansion system compensates for shrinkage and settlement in the plastic state
- High early and ultimate strength
- Chloride free
- Pre-packaged needing only on-site addition of water
- RCS (Respirable Crystalline Silica) Hazard Free
- Non-shrink - according to ASTM C1107:2020

Description

Conbextra UW is supplied as a ready to use powder. The addition of a controlled amount of clean water produces a free flowing non-shrink grout. The grout exhibits exceptional resistance to 'washing-out' of the cement phase when placed in stationary or slow moving water.

Conbextra UW is a blend of cement, graded fine aggregate and chemical additives which impart controlled expansion, water reduction and non wash-out characteristics. The aggregate grading minimises segregation and bleeding whilst assisting the flow characteristics.

Conbextra UW is not hazardous in accordance with Australian Inventory of Industrial Chemicals. Contains <0.1% RCS.

Maximum aggregate size for pumping is 0.3mm.

Properties

Test Method	Standard	Result				
Compressive Strength	AS 1478.2:2005	Consistency	Water Addition	1 Day	7 Days	28 Days
		Flowable	4.4 L	25 MPa	44 MPa	53 MPa
Flexural Strength (Modulus of Rupture)	AS 1012.11 - 2000	1 Day 7 Days 28 Days	3.4 MPa 7.3 MPa 8.8 MPa			
Indirect Tensile Strength	AS 1012.10.2000	1 Day 7 Days 28 Days	1.7 MPa 3.5 MPa 4.1 MPa			
Tensile Bond Strength to submerged concrete		2.1 MPa				
Setting Time	AS 1012.18:1996	5.0 hours - initial set 7.5 hours - final set				
Fresh Wet Density		2050 kg/m³ - depending on consistency used				
Alkali reactive particles	Rapid Mortar Bar Test (RTA T363)	Non-reactive				
Flow Characteristics	AS 1478.2:2005	400mm (Flow Trough)				
		Above Water	Below Water			
Minimum Thickness		10mm	10mm			
Maximum Thickness		80mm	150mm			

Clarification of property values: The typical properties given above are derived from laboratory testing. Compressive strengths stated above were measured using cube samples. Test results obtained will vary if carried out to an alternative standard or sample dimensions are used.

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Test Results to ASTM Specification C1107: 2020

Test Method	Standard	Result	
Flow Consistency	ASTM C939:2016a	>145%	
Setting Time	ASTM C953:2017	Initial: Final:	300 mins 330 mins
Change in Height at Early Age at Final Setting Time	ASTM C827:2016	+1.2%	
Height Change of Hardened Grout Moist Cure	ASTM C1090:2015	1 day 3 days 7 days 28 days 28 days + 28 days in air	+0.31% +0.33% +0.33% +0.34% +0.33%
Compressive Strength	ASTM C109:2020b	1 day 3 days 7 days 28 days	25.0 N/mm^2 46.6 N/mm^2 58.8 N/mm^2 67.6 N/mm^2

Note: All tests were carried out at 25°C ± 2°C until the age of the test. All above test results are independent third party results. Copies of these test results are available on request. The tests were carried out at a water addition rate of 4.4L per 20kg.

Application Instructions

Preparation

The substrate surface must be free from oil, grease or any loosely adherent material. If the concrete surface is defective or has laitance, it must be cut to a sound base.

Substrates which are permanently immersed should be sand-blasted or cleaned with a high pressure water jet. Non-immersed or intermittently immersed substrates can be prepared using these techniques. Alternatively scabbling or bush hammering may be appropriate.

Formwork

The formwork should be constructed to be leakproof as Conbextra UW is a flowing grout. This can be achieved by using foam rubber strip.

Mixing

A forced-action mixer is essential. Mix for 3 to 5 minutes at a slow speed (400/500rpm) in a suitably sized drum using appropriate equipment such as a 120/140mm helical mixing paddle fitted to a heavy-duty 1600W mixer.

The selected water content should be accurately measured into the mixing bucket. While mixing, slowly add the total contents of the Conbextra UW bag, mix continuously for 3 to 5 minutes, ensuring a smooth, even consistency is obtained. Aways add the powder to the water.

Required Consistency	Litres of water added per 20kg bag	Yield - litres of mixed material
Flowable	4.4	11.6

Mixing larger volumes

Larger quantities will require a high shear vane mixer. Do not use a colloidal impeller mixer.

It is essential that machine mixing capacity and labour availability is adequate to enable the grouting operation to be carried out continuously. This may require the use of a holding tank with provision for gentle agitation to maintain fluidity.

Measure accurately 4.4 litres of water for each 20kg bag into the mixer. Slowly add the Conbextra UW whilst mixing continuously. When all the powder is added mix continuously for 3 to 5 minutes ensuring a smooth even grey coloured consistency is obtained. (Fluidity will increase with increased mixing).

Placing

Place the grout within 20 minutes of mixing to gain the full benefit of the expansion process. Continuous grout flow is essential to prevent any air or water entrapment.

The mixed grout should be poured or pumped through a flexible tube, having a minimum diameter of 50mm, to the lowest point in the form.

Care must be taken at the start of the grouting operation to restrict the grout flow so that water is not entrapped.

The tube may be raised as necessary to reduce any back pressure. It should not be raised above the surface level of the grout.

Conbextra UW can be placed in thicknesses from 10mm up to 80mm in one pour when used above water. When used underwater, the heat sink effect in this environment will allow thicknesses of up to 150mm to be placed.