

Flowable, precision cementitious grout for large volume and deep pours - (gaps 20 mm to 500 mm thickness)

Uses

Conbextra Deep Pour is a free flow precision grout for grouting gap applications ranging from 20 mm up to a maximum of 500mm deep. Conbextra Deep Pour is formulated to minimise segregation and bleeding for deep grout pours.

Advantages

- Unique non-metallic dual expansion system compensates for shrinkage in both the plastic and hardened states
- Excellent initial flow and flow retention
- High ultimate strength and low permeability ensure durability of the hardened grout
- Hydrogen-free gaseous expansion
- Chloride free
- Suitable for pumping or pouring over a large range of application consistencies and temperatures

Description

Conbextra Deep Pour, shrinkage compensated cementitious precision grout, is supplied as a ready to use dry powder. The addition of a controlled amount of clean water produces a free-flowing precision grout for gap thicknesses up to 500 mm. In addition the low water requirement ensures high early strength and long term durability.

Conbextra Deep Pour is a blend of Portland cements, graded fillers and chemical additives which impart controlled expansion in both the plastic and hardened states. The filler grading minimises segregation and bleeding over a wide range of application consistencies.

Maximum filler aggregate size contained in Conbextra Deep Pour is 5 mm.

Standards compliance

AS 1478.2-2005 Appendix E Early Volume Change

AS 1478.2-2005 Table 4.1.2.2 Consistency

Rapid Mortar Bar Test (RTA T363)

Technical support

Parchem offers a comprehensive range of high quality, high performance construction products. In addition, Parchem offers technical support and on-site advice to specifiers, end-users and contractors.

Specification clauses

Performance specification

All precision grouting (specify details and areas of application) must be carried out with a pre-packaged cement based product, which is non-metallic, chloride-free and suitable for gaps up to 500mm.

It shall be mixed with clean water to the required consistency and not exhibit bleed or segregation.

A volumetric expansion of up to 3% shall occur while the grout is in a plastic state by means of a gaseous, hydrogen-free system. The grout must also be compensated for shrinkage in the hardened state.

The compressive strength of the grout must exceed 42 MPa at 7 days and 60 MPa at 28 days.

The storage, handling and placement of the grout must be in strict accordance with the manufacturer's instructions.

Supplier specification

All precision grouting (specify details and areas of application) must be carried out using Conbextra Deep Pour manufactured by Parchem and used in accordance with the manufacturer's current Technical Data Sheet.

Flow properties of mixed grout

The flow distances given below in (mm) are intended as a guide. Actual flow distances will vary depending on site conditions:

| Gap Depth (mm) | Flowable 100mm head (mm) | Flowable 250mm head (mm) |
|----------------|--------------------------|--------------------------|
| 30 | 1500 | 3000 |
| 40 | 2200 | 3000+ |
| 50 | 3000 | 3000+ |

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Properties

| Test Method | Standard | Result | | | | |
|--|----------------------------------|--|----------------|-------|--------|---------|
| Compressive Strength | AS 1478.2:2005 | Consistency | Water Addition | 1 Day | 7 Days | 28 Days |
| | | Plastic | 2.4-2.6 | 10 | 45 | 65 |
| | | Flowable | 2.6-2.8 | 5 | 42 | 60 |
| Bond Strength by Pull Off | EN 1542:1999 | 2.6MPa | | | | |
| Chloride ion Content | EN 1015-17:2000 | 0.004% | | | | |
| Fire Rating | EN 13687-1:2002 | Class A1 Non-Combustible | | | | |
| Flexural Strength (Modulus of Rupture) | AS 1012.11 - 2000 | 7 Days | 5.0 MPa | | | |
| | | 28 Days | 7.5 MPa | | | |
| Indirect Tensile Strength | AS 1012.10.2000 | 7 Days | 2.5 MPa | | | |
| | | 28 Days | 4.0 MPa | | | |
| Setting Time | AS 1012.18:1996 | 6.5 hours - initial set 9.0 hours - final set | | | | |
| Fresh Wet Density | | 2200 kg/m ³ - depending on consistency used | | | | |
| Alkali reactive particles | Rapid Mortar Bar Test (RTA T363) | Non-reactive | | | | |
| Flow Characteristics | AS 1478.2:2005 | 500mm (Flow Trough) | | | | |
| Minimum Thickness | | 20mm | | | | |
| Maximum Thickness | | 500mm | | | | |

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.

Note: Compressive strengths stated were measured at bottom end water, eg., the 28 day strength of 60 MPa for flowable consistency was obtained at a water ratio of 2.6 litres of water per 20kg bag of Conbextra Deep Pour.

Test Results to ASTM Specification C1107: 2001

| Test Method | Standard | Result | |
|------------------------|-----------------|----------|-----------|
| Flow Consistency | ASTM C1437:2007 | 126% | |
| Setting Time | ASTM C191:2008 | Initial: | 5.0 hours |
| | | Final: | 5.8 hours |
| Plastic Volume Change | ASTM C1090:2010 | +0.84% | |
| Hardened Volume Change | ASTM:C827:2010 | 1 day | 0.4% |
| | | 3 days | 0.06% |
| | | 14 days | 0.05% |
| | | 28 days | 0.06% |
| | | 56 days | 0.05% |
| Compressive Strength | ASTM C109:2011b | 1 day | 12.5 MPa |
| | | 3 days | 36.4 MPa |
| | | 7 days | 44.3 MPa |
| | | 28 days | 60.1 MPa |

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 2.4L per 20kg.

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Application Instructions

Preparation

Foundation surface

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 back to a sound base. Bolt holes or fixing pockets must be blown clean of any dirt or debris.

Pre-soaking

Several hours prior to grouting, the area of cleaned foundation should be flooded with fresh water. Immediately before grouting takes place, any free water should be removed. Particular care should be taken to blow out all bolt holes and pockets.

Base plate

It is essential that this is clean and free from oil, grease or scale. Air pressure relief holes should be provided to allow venting of any isolated high spots.

Levelling shims

If these are to be removed after the grout has hardened, they should be treated with a thin layer of grease.

Formwork

The minimum gap for pouring Conbextra Deep Pour is 25 mm. The formwork should be constructed to be leakproof as Conbextra Deep Pour is a free flowing grout. This can be achieved by using foam rubber strip or construction silicone sealant beneath the constructed formwork and between joints.

The unrestrained surface area of the grout must be kept to a minimum. Generally the gap width between the perimeter formwork and the plate edge should not exceed 150 mm on the pouring side and 50 mm on the opposite side. There should be no gap at the flank sides.

Mixing

A forced-action mixer is essential. Mix for 3 to 5 minutes at a slow speed (400/500 rpm) in a suitably sized drum using appropriate equipment such the Ransom MDR59 140 x 600 M14 Helical mixing paddle (product code: N4020892-UNIT) fitted to a heavy-duty 1600W mixer, such as Ransom RAN160 (product code: NP7AN160-UNIT) or equivalent.

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.

The selected water content should be accurately measured into the mixer. Slowly add the total contents of the Conbextra Deep Pour bag, mix continuously for 5 minutes, ensuring a smooth, even consistency is obtained.

Placing

Place the grout within 15 minutes of mixing to gain the full benefit of the expansion process.

Conbextra Deep Pour can be placed in thicknesses up to 500 mm in a single pour.

Any bolt pockets must be grouted prior to grouting between the substrate and the base plate.

Continuous grout flow is essential. Sufficient grout must be available prior to starting and the time taken to pour a batch must be regulated to the time taken to prepare the next one.

The mixed grout should be poured only from one side of the void to eliminate the entrapment of air or surplus pre-soaking water. This is best achieved by pouring the grout across the shortest distance of travel. The grout head must be maintained at all times so that a continuous grout front is achieved.

For larger pours the grout may be hand placed or pumped into a removable hopper (trough).

Pumping

Where large volumes have to be placed Conbextra Deep Pour may be pumped. A heavy duty diaphragm pump is recommended for this purpose. Screw feed and piston pumps may also be suitable. Maximum aggregate size for pumping is 5.0 mm. Ensure the selected pump is capable of pumping this size of aggregate.

Curing

On completion of the grouting operation, exposed areas should be thoroughly cured. This should be done by the use of Concure curing membrane, continuous application of water and/or wet hessian.

Cleaning

Conbextra Deep Pour should be removed from tools and equipment with clean water immediately after use. Cured material can be removed mechanically.

Limitations

Low temperature working

When the air or contact surface temperatures are 5°C or below on a falling thermometer, warm water (30-40°C) is recommended to accelerate strength development.

For ambient temperatures below 10°C the grout consistency should be flowable and the formwork should be maintained in place for at least 36 hours.

Normal precautions for winter working with cementitious materials should then be adopted.

High temperature working

At ambient temperatures above 35°C the mixed grout should be stored in the shade. Cool water (below 20°C) should be used for mixing the grout.



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Note: long narrow grouting sections should be avoided where possible and pours arranged to achieve a length : minimum thickness ratio of not more than 20 : 1.

Estimating

Supply

Conbextra Deep Pour is supplied in 20 kg moisture resistant bags.

Material code: FC501070-20KG

Yield

Allowance should be made for wastage when estimating quantities required. The approximate yields are:

Flowable Consistency

| | Litres / bag | No. Bags / m ³ |
|-------|--------------|---------------------------|
| Yield | 10.0 | 100 |

Storage

Conbextra Deep Pour has a shelf life of 12 months from date of manufacture if kept in a dry store in the original, unopened bags or packs. Refer to the Use by Date indicated on the packaging.

Important notice

A Safety Data Sheet (SDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.