

MAKGROUT LA ULTRA

TECHNICAL DATA SHEET

High Strength, Micro Concrete, Class C Cementitious Grout for Structural Repairs

Makgrout LA Ultra is a high-strength dual expansion Class C structural cementitious grout for structural repairs.

Makgrout LA Ultra is supplied as a ready to use blend of dry powders which require only the site addition of clean water to produce a free-flowing, shrinkage compensated, micro concrete suitable for large volume repairs at a maximum thickness of up to 950mm.

RECOMMENDED USES

- Reinstatement of large structural sections of concrete
- Grouting where deep pours are required
- Used where excellent chloride and carbon dioxide resilience is required
- Low heat of hydration, reduces thermal and drying shrinkage
- Low alkali content minimises risk of alkali-silica reaction
- Heavy duty grouting
- High strength support beneath machine base plates
- Exceptional flow allows for ease of placement in difficult areas

FEATURES AND BENEFITS

- Can be applied in sections from 20mm to 950mm thick
- Achieves 75MPa @ 56 Days
- Maximum compatibility with concrete compressive strength, 30 - 75MPa

- Unique dual expansion system offers an extremely high level of control of plastic and long-term drying shrinkage
- Low alkali content minimises risk of alkali-silica reaction
- Excellent bond to concrete substrates without independent primer
- Extremely low permeability provides excellent protection against carbon dioxide and chlorides
- Self-compacting nature eliminates honeycombing and displaces air without vibration
- Pre-bagged to overcome site-batched variations – only the site addition of clean water is required
- Contains no chloride admixtures
- Australian Made and Australian Owned

APPLICATION INSTRUCTIONS PREPARATION

The unrestrained surface area of the repair must be kept to a minimum. The formwork should be rigid and tight to prevent loss of material and have properly sealed faces to ensure that no water is absorbed from the repair material.

The formwork should include drainage outlets for pre-soaking and, if beneath a soffit, provision for air-venting. Provision must also be made for suitable access points to pour or pump the mixed micro concrete into place. Saw cut or cut back the extremities of the repair locations to a depth of at least 10mm to avoid featheredging and to provide a square edge. Break out the complete repair area to a minimum depth of 20mm up to the sawn edge.

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae.

Where breaking out is not required, roughen the surface and remove any laitance by light scabbling or grit-blasting.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits paying particular attention to the back of exposed steel bars. Abrasive blasting or high-pressure water blasting is recommended for this process.

Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water immediately after grit-blasting to remove corrosion products from pits and imperfections within its surface.

REINFORCING STEEL PRIMING

Apply one full coat of **Makrete Zinc Primer** and allow to dry before continuing.

PRE-SOAKING SUBSTRATE PRIMING

Pre-soaking the grout area with clean water helps to ensure good adhesion of **Makgrout LA Ultra** at the interface of the concrete and improves the flow of the grout during the installation. The area should be filled with clean water during the installation. The area should be filled with clean water for a minimum of 2 hours before the grouting takes place.

Before using **Makgrout LA Ultra** ensure any free water should be removed by draining or vacuum.

MIXING

Ensure the **Makgrout LA Ultra** is thoroughly mixed. A forced action mixer is essential. Mix for 3 to 5 minutes at a slow speed (400/500 rpm) in a suitable drum using appropriate equipment such as a helical mixing paddle fitted to a heavy duty 1600W mixer. Free fall

mixers must not be used. Mixing of part bags is not recommended.

It is essential that machine mixing capacity and labour availability is adequate to enable the placing operation to be carried out continuously. Measure 2.5 to 2.8 litres of drinking quality water and pour three quarters into the mixer. With the machine in operation, add one full 20kg bag of **Makgrout LA Ultra** and mix for one minute before adding the rest of the water. Mix for a further 2-3 minutes until a smooth even consistency is obtained. Note that powder must always be added to water. The quantities mixed may be scaled up as required.

When the drill and paddle mixing method is used, the complete 2.5 to 2.8 litres of water should be placed in the mixing drum. With the paddle rotating, add one full 20kg bag of **Makgrout LA Ultra** and mix for 2-3 minutes until a smooth even consistency is obtained. It is recommended that the mixed product be passed through a suitable coarse metal screen prior to placing or pumping to highlight any unmixed material.

MIXING PRECAUTION

Mixing instructions must be strictly adhered to with particular emphasis on the quantity of water used and the time of the mixing operation. Otherwise, **Makgrout LA Ultra** may exhibit satisfactory handling characteristics even though inadequately mixed. This will result in a significantly lower level of performance or possible failure.

DO NOT MIX BY HAND

DO NOT ADD ADDITIONAL WATER

Discard any unused grout that has stiffened or hardened.

CURING

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

PACKAGING

Makgrout LA Ultra is supplied in 20kg poly lined bags.

SHELF LIFE

Makgrout LA Ultra has shelf life of 12 months if stored in the original sealed packaging in dry, low humid environments. Do not use if there are any lumps in the product.

CLEAN UP

Makgrout LA Ultra should be removed from tools and equipment with clean water immediately after use. Cured material can only be removed mechanically.

HEALTH AND SAFETY INFORMATION

Avoid contact with skin. Protective gloves and clothing are recommended when mixing or using this product. Please refer to full Safety Data Sheet for this product, which is available from Makrete Building Solutions.

TECHNICAL SPECIFICATIONS PERFORMANCE CHARACTERISTICS

TEST	STANDARD	TYPICAL PROPERTIES (RESULTS) MPa				
		Consistency	Water Addition	7 Days	28 Days	56 Days
Compressive Strength MPa	AS 1478.2:2005 AS 1012-11	Stiff	2.0 - 2.1	50	65	85
		Plastic	2.2 - 2.4	42	60	80
		Flowable	2.5 - 2.8	35	57	75
Flexural Strength (Modulus of Rupture)	AS 1012.11 - 2000	7 Days 28 Days 56 Days	> 7.0 MPa >10.0 MPa > 11.0 MPa			
Indirect Tensile Strength	AS 1012.10.2000	7 Days 28 Days 56 Days	4.8 MPa 6.8 MPa 8.5 MPa			
Setting Time	AS 1012.18:1996 ASTM C191-2008		Initial Set @ 20°C	Final Set @ 20°C	Litres of water per bag	
		Stiff	1.5 hours	3.5 hours	2.0 - 2.1	
		Plastic	3.0 hours	4.5 hours	2.2 - 2.4	
		Flowable	5.0 hours	7.0 hours	2.5 - 2.8	
Fresh Wet Density	AS1012.5	Approx. 2300 kg/m ³ - depending on consistency mixed				
Minimum Thickness Maximum Thickness		20 mm 950 mm				
Flow Consistency initial	CRDC-621-82	20 - 30 seconds using CRDC Flow Cone				
Flow Retention after 25 mins	CRDC-621-82	35 - 45 seconds using CRDC Flow Cone				
Working Time	AS1012.18	30 - 40 minutes @ 20°C				
Bond Strength	ASTM C882-1987 Slant Shear Method	>12 MPa @ 28 days				
Expansion Characteristics	In a plastic state ASTM C940	1 - 2% in plastic state (Volume expansion) Expansion Starts after 5 minutes Finishes in 2 hours				
Application Temperature		Min 5°C Max 30°C				
Bleed		0				

YIELDS

Consistency	STIFF	PLASTIC	FLOWABLE
Water per 20 kg bag - LITRES	2.0 - 2.1	2.2 - 2.4	2.5 – 2.8
Yield per 20 kg bag - LITRES	9.6	9.8	10.3
Fresh Wet Density in kg/m ³	2300	2280	2220
Bags required per cubic metre (m ³)	104 Bags	102 Bags	97 Bags

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Product	MAKGROUT LA ULTRA
Issue Date	APR 2023
Issue No:	1
Item Code	MAKG22
Pack Size	20 kg Bag

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.

The TDS should be carefully read 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. Makrete 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.

The information and any recommendations relating to the application and end-use of all MAKRETE products are provided in good faith based on MAKRETE's knowledge and experience of the products. In applications, the differences in materials, and variances of substrates and actual site conditions can vary such that no warranty in respect of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be taken as inferred either from this information, or from any written recommendations, or from any other advice offered by MAKRETE. The proprietary rights of third parties must be observed. All orders are accepted subject to our sale terms and conditions.

It is recommended that all products be properly stored, handled and applied in accordance with the printed literature (TDS).

PLEASE CONSULT OUR TECHNICAL DEPARTMENT FOR FURTHER INFORMATION.