

MAKGROUT EP

TECHNICAL DATA SHEET

High-Strength Two Component Free Flow Epoxy Grout

Makgrout EP is a two-component free flow epoxy grout. It offers longer work time characteristics for higher temperature conditions and deeper pours.

Makgrout EP is an epoxy resin-based product designed for free flow grouting of gap thicknesses from 2mm to 150mm. It has superior mechanical properties.

Makgrout EP can be used underwater and is chemical resistant to saltwater and mild acids and alkalis.

RECOMMENDED USES

- Grouting under baseplates, crane rails, turbines where heavy dynamic loads are encountered and areas where chemical spillage may occur
- Can be mixed with **Makrete Filler M4/M6** to produce mortars
- Suitable for pumping
- Bonding new concrete to old concrete
- Grouting from 2mm to 150mm in a single application
- Rail anchoring and grouting
- Structural anchoring of bolts, bars, inserts
- Hot weather applications
- Grouting in all weather conditions

FEATURES AND BENEFITS

- For gap width from 2mm to 150mm
- Excellent flow
- Low exotherm-long life
- Excellent chemical resistance
- Bonds to damp concrete
- High mechanical strength
- Fast, convenient installation with rapid strength gain
- Non-shrink, ensuring complete surface contact and bond
- 100% solid epoxy
- Solvent free
- Easy mixing – add aggregate on site if required
- Australian Made and Australian Owned

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

New concrete should be at least 28 days old. All surfaces must be clean and free from rust, dust, oil, wax, grease etc. Concrete should be scabbled if necessary to remove any weak, crumbly structure.

All debris, dust, additional water must be removed from bolt holes.

Formwork should be treated for release by use of wax or plastic tape. Ensure any residual pooling water is removed prior to application. All steel surfaces should be cleaned to ensure no corrosion is present. Steel surfaces should be blasted to SA2.5. Clean steel surfaces may be protected with **Makprime Zinc**.

FORM WORK

The formwork should be constructed to be leakproof as **Makgrout EP** is designed as a free-flowing grout.

Loss of grout once the material is placed but not hardened, will result in incomplete filling of the

gap. For free-flow grout conditions it is essential to provide a hydrostatic head of grout.

Ensure all formwork is sealed tight and the use of a silicone or polyurethane is recommended.

Makgrout EP is suitable for pumping.

The form work should be coated with form oil or release oil prior to grouting (Consult **Makrete** Technical Department for additional information).

MIXING

Mix the Resin (Part A) and Hardener (Part B) components separately to ensure no settlement has occurred. The active contents of the Hardener (Part B) should be poured into the Resin (Part A) component.

Mix thoroughly using a low-speed drill and paddle until the mix is homogeneous.

PLACING

The mixed grout should be poured steadily from one side only to eliminate the entrapment of air.

Continuous grout flow is essential. Sufficient grout must be available prior to starting. The time taken to pour a batch should be regulated to the time taken to prepare the next batch. After curing the unrestrained grout should be cut back below the bottom of the baseplate using a skill saw.

At low temperatures it is recommended that the Part A (Resin) and Part B (Hardener) be conditioned to warmer temperatures. Ideally, to allow the **Makgrout EP** to reach an ambient temperature of around 20-25°C.

DEEP SECTION APPLICATION

For sections greater than 150mm the addition of **Makrete M4/M6 Fillers** is required. Add between 30-40kg of M4/M6 Filler to a full 15 litre kit of **Makgrout EP**.

APPLICATION - LIMITATIONS

Temperature

During application of **Makgrout EP** grouting may be carried out without special precautions at ambient temperatures from 5°C to 25°C. Where ambient temperatures exceed 25°C the pot life will be reduced. The working time will be significantly reduced, and the product will begin to set early.

Cure temperatures below 15°C will result in slower strength build up. At 5°C the cure will be significantly reduced until the material warms.

Exotherm: All epoxy systems will develop a temperature rise on mixing. Its extent will be a function of the volume to surface ratio, the ambient temperature as well as the mass and thermal conductivity of the surrounding materials. Contact **Makrete** for specific advice.

In general, the greater the volume the greater the exotherm and the faster the set and placement time.

The cured grouts, which are completely resistant to frost and sub-zero temperatures, are suitable for use up to 45°C.

PACKAGING

Makgrout EP is supplied in 15 Litre Containers.

SHELF LIFE

Makgrout EP has a 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 EP should be removed from tools and equipment with **Makrete** solvent 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	Makgrout EP (No Fillers)	Makgrout EP with Makrete M4/M6 Fillers
Appearance		Part A – White Part B – Black Mixed A&B - Grey	Part A – White Part B – Black Mixed A&B and M4/M6 Fillers – Light Grey
Compressive Strength			
1 Day	AS 1478.2 AS 1012.11	100 MPa	95 MPa
3 Days	AS 1478.2 AS 1012.11	115 MPa	110 MPa
7 Days	AS 1478.2 AS 1012.11	125 MPa	115 MPa
Flexural Strength 7 Days	AS 1012.10	35 MPa	32 MPa
Indirect Tensile 7 Days	AS 1012.11	22 MPa	25 MPa
Bond Strength	ASTM C882 Slant Shear Method	>45 MPa	>45 MPa
Shore D Hardness	Shore D	>80	>80
Water Absorption 14 Days		<0.05%	<0.05%
Consistency		Flowable/Fluid	Pourable
Modulus of Elasticity	AS 1012.17	15 GPa	12 GPa
Co-efficient of Thermal Expansion	ASTM 6531	9.10 x 10 ⁻⁵ mm/mm°C	11 x 10 ⁻⁵ mm/mm°C
Pot Life - 10°C		60 – 70 mins	60 – 90 mins depending on volume
Pot Life - 20°C		30 – 45 mins	50 – 90 mins depending on volume
Pot Life - 30°C		15 – 20 mins	20 – 30 mins depending on volume
Service Temperature		-30°C - +80°C	-30°C - +80°C
Full Cure		7 Days	7 Days

Compressive Strength at Varying Temperatures Based on Cure Rate

TEMPERATURE						
	5°C	10°C	15°C	20°C	25°C	30°C
COMPRESSIVE STRENGTH MPa						
Cure Time						
2 hrs	0	0	10	40	45	50
3 hrs	0	4	15	70	78	90
4 hrs	0	15	25	80	85	95
5 hrs	5	22	30	85	90	100
10 hrs	25	35	45	90	95	110
12 hrs	40	45	60	100	105	110
24 hrs	70	80	95	105	105	110
3 Days	85	95	110	110	115	125
7 Days	100	110	120	120	125	125

CONTACT & TECHNICAL SUPPORT
 Makrete Pty Ltd
 ABN: 14619437204
 PO Box 50, Montmorency, VIC 3094
 Ph: 1300 911 161
 E: admin@makrete.com.au
 W: www.makrete.com.au

PRODUCT	MAKGROUT EP
Issue Date	AUG 2023
Issue No:	1
Item Code	MAKG226
Pack Size	15 Litre Container – Part A & Part B

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.