

EUNIGROUT 500

CEMENTITIOUS NON-SHRINK GROUT

DESCRIPTION

EUNIGROUT 500 is a premixed cementitious non-shrink grout that delivers exceptional performance at different consistencies. It has been specifically formulated to meet the standards of ASTM C1107 and CRD C621. EUNIGROUT 500 is characterized by being non-gaseous, non-corrosive, non-oxidizing and free from chlorides and nitrates.

USES

EUNIGROUT 500 is suitable for a wide range of grouting applications where shrinkage is undesirable. It finds typical uses in underplate grouting, space grouting and repairs to precast concrete. Additionally, it is effective for bedding bearing plates, anchor bolt fixing, cable grouting and crane rail assembly. EUNIGROUT 500 can be utilized for concrete repairs and floor top-pings, offering versatility in various construction projects.

ADVANTAGES

- Non-gaseous grout, free of bleeding, settlement and shrinkage, with long stability over a wide range of temperatures and humidities.
- Factory-blended and packed to eliminate site variations and errors.
- Extremely fluid consistency for easy application in difficult access areas.
- Excellent flow retention and long usable life, even at high ambient temperatures.
- High, non-corrosive bonding to steel and concrete.
- High early strength characteristics for rapid return to service.
- Excellent ultimate strength, even at fluid consistency.
- Non-shrink maintains maximum contact with surface.

TYPICAL PROPERTIES

Appearance: Grey granular powder

Specific Gravity: 2.1 - 2.3 g/cm³; dependent on consistency

Coefficient of Thermal Expansion: 1.3×10^{-5} mm/(mm/°C)

Water Absorption, Age Analysis (Oven Dry):

1 hour: +0.5%

24 hours: +0.9%

Exothermic Adiabatic, 1 kg sample:

15°C Ambient: +11°C

25°C Ambient: +25°C

35°C Ambient: +38°C

Restrained Expansion (ASTM C878): +0.6% at 28 days

Freeze/Thaw: 50 cycle - no weight loss

Tensile Strength (BS 6319, Part 7): 4.5 MPa

Bond Strength (BS 6319, Part 4): 45.4 MPa

Mix Properties	Pourable	Flowing	Fluid
Approx. water requirement (per 25 kg) (L)	3.75 - 4.5	4.5 - 5	5 - 5.5
Flow table spread, ASTM C109	230	> 250%	> 250%
Marsh cone (sec)	-	90	35
Concrete flow trough Initial (mm) At 45 min (mm)	400 -	600 400	700 500
Approx. yield per 50 kg bag (m ³)	0.0254	0.0260	0.0266
Setting times at 20°C Initial set (hours) Final set (hours)	7 9	8.5 11	10 13

Typical results for a range of grouting conditions are given below:

Temperature: 20°C - Compressive Strength (MPa) (BS 6319, Part 2)			
Days	Plastic (W: 3.5-4.5 L)	Flow (W: 4.6-5 L)	Fluid (W: 5.1-5.5 L)
1	30	27	20
3	48	40	35
7	56	42	35
28	60	48	40
Temperature: 32°C - Compressive Strength (MPa) (BS 6319, Part 2)			
1	35	30	25
3	50	43.5	37
7	57.7	45	40
28	63	52	44
Temperature: 20°C - Flexural Strength (MPa) (BS 6319, Part 2)			
14	8.5	7.5	7

MIXING

For optimum dispersion and workability, it is recommended to use mechanical grout mixers. Conventional or hand mixing may lead to lower workability. It is important not to exceed the minimum water content, as it can result in a loss of properties. Start by mixing the dry powder and gradually add the water over a span of 1 - 2 minutes. Continue mixing for an additional 2 - 3 minutes until the mixture is smooth and cohesive. It is advisable to maintain consistent timings for each operation to achieve consistent results whenever possible.

APPLICATION

Surface Preparation

Prior to application, it is important to ensure that all surfaces are clean and in good condition. Remove any surface laitance by using acid etching or grinding methods. It is recommended to thoroughly wet all surfaces 6 - 24 hours before starting the application and maintain a moist condition during the placing process. Any excess surface water should be removed prior to applying the product. This preparation ensures optimal bonding and performance of the material.

Application Instructions

1. Underplate grouting

When performing underplate grouting, it is recommended to use a flowing or fluid consistency grout. Ensure that the formwork is properly sealed to prevent grout leakage and maintain a minimum hydrostatic head of 100 mm. Sufficient material should be available to complete the entire task and achieve a continuous fill. It is advisable to pour the grout from one side only to prevent air entrapment, while maintaining a head on the grout to encourage smooth flow. Avoid vibrating the grout, but rods, straps and chains can be used to assist in achieving complete filling. For preplaced aggregate grout, a fluid or flowing consistency grout should be utilized and either pumped or poured into place. It is important to note that the compressive strength development and ultimate strength of the concrete may be slightly reduced compared to flowing grouts.

2. Grouting large volumes

When dealing with grout thickness exceeding 75 mm, it is advisable to incorporate clean and well-graded 10 mm aggregates into the mixture. This addition helps to reduce temperature rise during curing. The recommended ratio is a maximum of one part aggregate to one part grout by weight. Conventional concrete pan mixers and pumps are suitable for mixing and placing the grout. Typical compressive strengths for a mixture consisting of equal parts EUNIGROUT 500 and 10 mm gravel, with a flowing consistency, are as follows:

1 day: $\geq 15 \text{ N/mm}^2$

7 days: $\geq 40 \text{ N/mm}^2$

28 days: $\geq 50 \text{ N/mm}^2$

3. Pumping

EUNIGROUT 500 can be effectively pumped using grout pumps equipped with ball valves, such as piston, ram, or diaphragm pumps.

4. Concrete repairs/floor patching

When conducting concrete repairs or floor patching, it is important to use a workable consistency that is suitable for the specific repair task at hand. To enhance the bonding between the repair material and the substrate, it is recommended to apply a polymer/grout bond coat. Here is a suggested mixture for the repair process:

EUNIGROUT 500: 50kg

EURIPARE BA3: 4 liters

Water: 5 liters

(The above quantities yield a plastic/flow consistency, which can be adjusted by varying the amount of water added.)

Note: It is possible to include up to 50kg of 3mm gravel or granite chips without compromising the mechanical properties of the mixture.

5. Thin bed mortar

For meeting ANSI standards and for floor topping or leveling applications, it is recommended to combine EUNIGROUT 500 with EURIPARE BA9 bonding agent. Here is an example of a suitable mixture:

EUNIGROUT 500: 50 kg

Sand (medium): 30 kg

EURIPARE BA9: 6 liters

Water: 6 - 8 liters

This mixture yields approximately 0.042 cubic meters of non-shrink polymer mortar, which is ideal for thin bed mortar applications.

CURING

Proper curing is crucial for exposed surfaces, especially in dry, sunny conditions. Failure to cure can reduce bond, strength and durability. Use alternative curing methods like water ponding, mist spraying, or wet hessian, ensuring maintenance for at least 7 days. Take special care to cure in hot climates for maximum properties and service life. Keep the grout temperature above 8°C during application.

PACKAGING

EUNIGROUT 500 is supplied in 25 kg multiply paper bags.

STORAGE

EUNIGROUT 500 should be stored and maintained in a dry area, free from moisture contact.

The shelf life of EUNIGROUT 500 is 12 months from the date of production.



HEALTH AND SAFETY

For more information, please check the Material Safety Data Sheet.

CONTACT

Al-Faiha for Engineering Products is the exclusive licensee manufacturer for ECA.

For more information, please contact us at techsupport@alfaihaengineering.com.