HY-GROUT E270

2 component, non-shrink epoxy grout with an extended pot-life & low exotherm

HYCHEM Infrastructure

Description

HY-GROUT E270 is designed for use wherever high ambient temperatures preclude the use of general purpose epoxy or cement based construction grouts. This may be due to large pour volume, high ambient temperature during application or high temperatures in the working environment. HY-GROUT E270 is formulated to provide good flow properties in tight spaces. Additional quartz aggregate may be added where design considerations allow the use of a heavier bodied grout.

Use

- Grouting bolts, rebar, dowels and inserts in concrete, rock and brickwork
- Grouting holding down bolts for dynamic machinery such as turbines, motors, winches, pumps and conveyors
- Grouting crane and transporter rails
- Grouting of machinery base plates
- Grouting column base plates in corrosive environments
- Bonding new to old concrete
- As a high strength repair mortar for concrete structures
- As a general replacement for cement grouts where environmental conditions prevent their use

Features & Benefits

- Non-Shrink
- Suitable for installation from 5mm to 75mm as supplied or 5mm to 100mm+ with the addition of suitable aggregates. Consult Hychem for technical advice
- Dust free application, no need for addition of 3rd component filler pack
- Rapid development of strength with good pot life and relatively low exotherm
- Very high mechanical strength – compressive, tensile and flexural
- Excellent vibration and dynamic load tolerance
- Excellent flow, suited to tight clearances of 5 to 15 mm
- Resistant to a wide range of chemicals, acids, caustic and hydrocarbons
- Moisture tolerant, can be applied to damp concrete

HY-GROUT E270 is ideal for use in a wide variety of industries such as marine, power generation, mining, chemical plants, structural engineering, transportation and general manufacturing.

Typical Cured Performance

Epoxy grouts have much higher physical performance properties than cementitious grouts, in particular compressive, tensile & flexural strengths. They have superior resistance to impact damage and cracking caused by mechanical vibrations. Individual epoxy grouts vary depending on whether they are formulated for high or low temperature use, minimal cost or specific flow and creep properties.

Chemical Resistance

HY-GROUT E270 has excellent resistance to dilute mineral acids, caustic solutions, mineral salt solutions and hydrocarbons.

For specific information, contact the HYCHEM Technical Department.

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Uncured Properties	
Appearance	Resin, viscous grey liquid : Hardener, amber liquid
Mix Ratio	6:1 by weight or 3:1 by volume
Specific gravity	Resin 2.0 Hardener 1.0 Mixed product 1.75
Pot life	15°C - 1 hour 25°C - 40 min 35°C - 20 min

Cured Properties		
Compressive strength	ASTM D695	120 MPa
Tensile strength	ASTM D638	>40 MPa
Bond to concrete	Dry Wet	3 MPa 3 MPa
Shear adhesion to steel		14 MPa
Service temperature		-10°C to 65°C
Strength development with time (23°C)	8 hours 16 hours 24 hours 3 days 7 days	10 MPa 35 MPa 55 MPa 100 MPa 110 MPa

Effect of aggregate addition on volume placement		
1 Litre of mixed HY-GROUT E270	**Plus**	**Yields**
	0 kg quartz aggregate	1.0 litre of grout
	1 kg quartz aggregate	1.4 litre of grout
	2 kg quartz aggregate	1.8 litre of grout
	3 kg quartz aggregate	2.1 litre of grout

Effect of aggregate addition on grout compressive strength		
1 Litre of mixed HY-GROUT E270	**Plus**	**Yields**
	0 kg quartz aggregate	110 MPa
	1 kg quartz aggregate	120 MPa
	2 kg quartz aggregate	100 MPa
	3 kg quartz aggregate	90 MPa

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Application Guidelines

Surface Preparation

Sub-Base Preparation - Ensure foundation concrete is properly cured. All surfaces should be clean and free from rust, dust, oil, wax, grease and standing water. Concrete should be scabbled if necessary to remove any weak, loose materials. Formwork should be treated with release agent where required.

Plate and Equipment Preparation - The bonding surfaces of the base plate to be grouted should be free of coatings, wax, grease or scale. Mask all external areas likely to be affected by rising grout.

Forming - Forms must be liquid tight and ideally should have a moveable head sloped at 45 deg to enhance grout placement. The top of the form must be a minimum of 18 mm above the equipment being grouted and all edges should be a minimum of 25 mm from each base plate.

Mixing

The resin is mixed with hardener at the designated mix ratios. Mix mechanically at 400 rpm for approximately 2 minutes then scrape down sides and continue mixing for a further 1 minute. If required, blend in additional quartz aggregate and mix until completely blended with the premixed epoxy resin component.

Temperature Conditioning – At high ambient temperatures wherever possible, cool the components before mixing. Work time varies with temperature, in general work time is halved for every 10°C temperature rise. For temperatures below 15°C, warm the components if possible.

Application

Under plates, pour mixed materials slowly into the prepared void from one side only and fill the cavity continuously to avoid air entrapment.

For anchoring bolts, rebar, dowels and inserts in concrete, rock and brickwork The following guidelines are suggested:

Hole diameter
Should generally be 1.5 times the insert diameter. This can be reduced for large insert diameters above 100mm.

Depth of embedment
Concrete tensile strength and the depth of bolt embedment determines the pull-out load. The anchor depth should be designed to provide bolt failure when tested in tension.

Hole spacing
Hole spacing is important to avoid stress interaction caused by holes spaced too closely together or near the edge of the structure. A good guide for minimum spacing is 10 times the bolt diameter for bolt spacing and five times the bolt diameter for edge spacing.

Epoxy grout placement
To avoid air entrapment, the liquid grout should be filled bottom up using enough head pressure to achieve the desired flow rate and distance.

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Packaging

16 Litre Kit

Part A - 12 Litre
Part B - 4 Litre

Shelf Life

This product has a shelf life of 12 months from date of manufacture, stored under shelter at 25°C in original un-opened container.

Complimentary Products

HY-GROUT E270 is part of a range of 2 part Epoxy Grouting Materials.

Other products in this range are HY-GROUT E260, HY-GROUT E205 & HY-GROUT E210.

Safety Precautions

Epoxy polymer products may cause allergic reactions through skin contact. Goggles and protective gloves and clothing should be worn at all times. Ensure that there is adequate ventilation and air flow and avoid breathing the vapour. If skin contact occurs wash skin with soap and water. If eye contact occurs wash immediately with copious amount of clean water.

Warranties and Disclaimers

Hychem warrants that this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product is dependent upon the proper use and application of the product by the applicator. Hychem has no role in the application of the finished polymer other than to manufacture and supply its components. It is vital that the person applying this product understands the product and is fully trained, experienced and competent in the use of epoxy grouting products. There are no warranties that extend beyond the description on the face of this instrument, except when provided in writing, directly by Hychem and executed under seal by a company officer.

Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by HYCHEM either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not HYCHEM are responsible for carrying out procedures appropriate to a specific application.

Customer Responsibility

The technical information and application advice given in this publication is based on the best information available at the time of print.
As the information herein is of a general nature, no assumption can be made as to the product suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by Commonwealth or State Legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use.

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