

# **ATECH PLUS**

*Grouting Solutions*

## **EPOGROUT 200 & QF 1**

### **Chemical Type**

Solventless, high performance amine cured epoxy grouts.

### **Description**

EPOGROUT 200 and EPOGROUT QF 1 are proven high strength epoxy based grouting systems, offering a unique combination of features and benefits. The products have a low exotherm, reducing possible shrinkage effects yet develop high compressive strengths, even at low environmental temperatures.

EPOGROUT 200 is unfilled and may be used as a low viscosity injection grout or with the addition of quartz aggregates for a range of bulk grouting applications. EPOGROUT QF 1 contains fine quartz powder and is ideally suited as a grout for holding down bolts. Additional quartz aggregate is added for larger volume pours to reduce cost and shrinkage exotherm.

The range of potential uses for these systems is extremely wide, due to the fact that the flow and curing performance can be easily modified directly at the point of use. The products are designed to be specified when fast mechanical strength development, long term non shrink performance, high chemical resistance and excellent dynamic load response are important.

### **Major Applications**

The grouts are suitable for the foundation grouting of machinery base plates, rail grouting or under column grouting typically found in new construction work or new machinery installation and alignment. They are particularly suitable for grouting dynamic machinery such as pumps, compressors, gearboxes and generators. EPOGROUT 200 can also be used for structural concrete bonding and repair by low pressure injection into narrow voids in concrete floor, walls, columns and beams. Properly used, this process can return cracked concrete elements to original design strength.

EPOGROUT 200 and QF 1 are also suitable for grouting bolts, rebar, dowels and inserts in concrete, rock and brickwork. The pull-out performance and durability of all mechanical inserts and anchors are maximised, since epoxy grouts exhibit 2 to four times the compressive strengths and ten times the tensile strength of concrete.

This EPOGROUT system is just one in a complete range of grouting systems, developed and manufactured in Australia for a wide range of local applications and service environments. The product finds wide use in a number of industries such as Manufacturing & Mining, Food processing, Chemical plants, Port and wharf facilities, Power Stations and Water treatment facilities.

EPOGROUT 200 Epoxy Grout has been widely used at BHPs Port Kembla plant and structurally supports many of its critical assets.

### **Chemical Properties**

Epoxy grouts have excellent resistance to acids compared to cementitious grouts and are often chosen for grouting in mines and chemical plants.

### **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, crumbly materials. Formwork should be treated with release agent where required. The foundation should be shaded from direct sunlight to prevent build up of excessive temperatures.

**Plate and Equipment Preparation** - The bonding surfaces of the base plate to be grouted should be free of coatings, wax, grease or scale. Wax or 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, edges should be a minimum of 25 mm from each base plate. For deep pours, the inclusion of steel reinforcement bars is recommended to eliminate possible stress cracking.

### **Surface Preparation**

Resin is mixed with hardener at the designated mix ratios by volume. Quartz aggregate is added to the mixed liquids, the level of aggregate may vary with up to 3 parts aggregate to 1 part resin blend by volume being commonly used. Grouting is often carried out in extreme temperature outdoor environments, the products application characteristics are ideal around 20 - 25 deg. Chill the product in hot climates, warming may be required in cold climates. Failure to take climatic conditions into account can cause either short pot life and high exotherm or result in poor flow characteristics.

Ensure that accessories such as formwork tools, mechanical mixers, empty pails, sealant and tape, safety goggles, gloves etc. are available on site.

### **Application**

Pour mixed materials slowly into the prepared void from one side only and fill the cavity completely to avoid air entrapment. When grouting bolts, ensure that the hole dimensions are at least 1.5 times the diameter of the bolt. Bolt holes need to be spaced at minimum 10 times the bolt diameter intervals and should not be closer than 5 diameters from the edge. The depth of the bolt hole is controlled by the tensile strength of the concrete and the pull out strengths required. The anchor depth should be designed to produce bolt failure when tested in tension. The holes should be dry cut by rotary percussion drilling as this produces a rougher cut, providing a better key for the grout. Loose material needs to be removed by blowing out with compressed air. Where holes are precast they should be cast undersized and drilled to obtain a sound structural bond. Smaller inserts, less than 10 mm are best grouted with neat EPOGROUT 200. For larger inserts, 1 volume of EPOGROUT 200 with 1.5 volumes of aggregate is typically used.

## Coverage

5 litre of aggregate, blended with 1 litre of resin mix will yield 2 litres of EPOGROUT 200 grout.

## Advantages

EPOXY GROUTS have much higher tensile strengths than cementitious grouts and are more resistant to vibration and impact damage. Resistance to degradation by acids, alkalis and salts is also vastly superior.

## Packaging

Available as a 30 litre resin pack. Aggregate supplied on demand.

## Indicative Specifications

<b>Mix Ratio</b>	EPROGROUT 200 Resin: Hardener 2:1 by volume, QF 1 Resin/Hardener 3:1 by volume
<b>Work Time</b>	15-45 minutes at 25°C, depending upon level of aggregate addition.
<b>Aggregate</b>	Blended 16/30 and 30/100 sand at 1-3 : 1 by volume.
<b>Specific Gravity E 200</b>	No aggregate 1.08, 1:1 by volume 1.7, 2:1 by volume 2.0
<b>Compressive Strength</b>	No aggregate 100 MPa, 1:1 - 110 MPa, 2:1 - 95 MPa, 3:1 - 85 MPa
<b>Flexural Strength</b>	No aggregate 85 MPa, 1:1 - 60 MPa, 2:1 - 40 MPa, 3:1 - 30 MPa
<b>Cure Rate</b>	Excellent development of mechanical strength, even at low temperatures. Develops in excess of 55 MPa in 6 hours at a temperature 18 deg. C when blended with a quartz aggregate mix at 1:1 by volume. Final cure at 24 hours 100 MPa.
<b>Pull Out Strengths</b>	14 mm deformed bar, embedded 150 mm should fail in tension at greater than 50 kN, A 25 mm deformed bar should pull concrete at forces in excess of 150 kN.

## Packaging

Epoxy Grout to be a fast curing, low exotherm grout such as EPOGROUT 200, EPOGROUT QF1 or performance equivalent.

### Field Support

Field support where provided, does not constitute supervisory responsibility. Suggestions made by ATECH either verbally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they and not ATECH 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 time of print. As the information herein is of a general nature, no assumption can be made as to the products 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.

### Safety Precautions

Epoxy products may cause allergic reactions through skin contact, goggles, protective gloves and overalls must be worn. Ensure that there is adequate ventilation and avoid breathing the vapour.

### Exclusion Clause

- The information contained in this data sheet is based on many years experience and is correct to the best of our knowledge. ATECH will be under no liability whatsoever whether in:
  - Contract or tort (including, without limitation, negligence)
  - Breach of statute
  - Any other legal or equitable obligation other than the quality of the product at the time of despatch.
- Any queries about specification use or application should be directed to our technical service department immediately.
- This exclusion clause does not operate to exclude any warranty that by law may not be excluded.



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