POURABLE EPOXY GROUT

EPAR S

TECHNICAL DATA

1.0 DESCRIPTION

EPAR S is a low viscosity, lightly filled, high strength epoxy grout. EPAR S has very good mechanical properties and chemical resistance.

EPAR S is "non-shrink" and has excellent adhesion to concrete, steel, stone, timber and many other materials.

Also available with a Fast Set -Cold Cure hardener for faster initial cure and for use from 0°C and above.

2.0 PHYSICAL PROPERTIES:

2.1	Viscosity	Low; pourable; self levelling.
2.2	Mix Ratio	Packs are premeasured for ease of mixing. If full pack not used:
	Standard hardener	1 part hardener: 11 parts resin by weight
	Fast Cure hardener	1 part hardener: 5.2 parts resin by weight
2.3	Pot Life	Approx 30 minutes for 900ml at 20°C Standard Hardener. Approx 20 minutes for 900ml at 20°C Fast Set Cold Cure Hardener
2.4	Initial Set (100ml sample)	
	Standard Hardener (at 20 °C)	6 hours, overnight hard (16 hours from mixing).
	Standard Hardener (at 10 – 15°C)	7.5 hours, overnight hard (16 hours from mixing).
	Fast Set-Cold Cure Hardener (at 20°C)	4 hours
	Fast Set-Cold Cure Hardener (at 4 – 5°C)	Overnight (16 hours from mixing)
2.5	Complete cure (all hardeners)	5 days.
2.6	Minimum Application Temp.	10°C. Standard. 0 °C Fast Set- Cold Cure hardener.
2.7	Shelf Life	1 year in original unopened containers.
2.8	Cured Properties	(Std. Hardener at 20°C)
2.8.1	Colour	Grey
2.8.2	Specific Gravity	1.7
2.8.3	Compressive Strength	29 MPa 1 day, 67 MPa 7 days.
2.8.4	Compressive Modulus	7 GPa.
2.8.5	Tensile Strength	24 MPa.
2.8.6	Thermal Expansion	6 x 10^{-5}mm/mm/°C.

3.0 USES

3.1 Grouting holding down bolts or starter bars into concrete.

3.2 Grouting under machinery, bearing plates, crane rails etc.

3.3 High strength nosings for bridges and industrial floors.

3.4 Filling spalls, cracks and chips in concrete floors.

Stratmore. Leading solutions for construction.

Stratmore Construction Solutions Limited

185 Rata Street | PO Box 35136 | Naenae Lower Hutt 5041 | New Zealand

P +64 4 567 8436 | F +64 4 567 7232 | E info@stratmore.co.nz | W stratmore.co.nz

EPAR S

TECHNICAL DATA Continued

4.0 APPLICATION INSTRUCTIONS

4.1 SURFACE PREPARATION. Thoroughly clean the jointing surfaces of all extraneous matter, especially oil and grease. Laitance should be removed from concrete surfaces mechanically or by acid etching. For best results steel surfaces should be prepared by sand blasting or grinding.

4.2 EPAR S can be applied to damp surfaces (free from any standing water), as long as the surfaces are correctly prepared. DO NOT apply to any surface with standing water on it. Remove all standing water from the surface, or within hole (as appropriate) using a clean rag followed by compressed air (with oil trap) – there must not be a damp sheen on the surface of the concrete when EPAR S is applied.

4.3 MIXING. EPAR S is supplied in packs containing the correct proportion of resin and hardener. To eliminate on site proportioning errors, it is advisable that complete packs are mixed, ensuring all contents of both resin and hardener containers are incorporated. If part packs are to be mixed it is necessary to devise a suitable system to ensure the correct volume of each component is used. Estimating quantity by eye is not sufficient. Suitable systems include pouring components into a calibrated container or measuring out the required number of volumes of resin and hardener using a standard size container.

4.3.1 Recommended mixing procedure – read all labels and safety information before use.

(1) Cut a slot (X) in the resin lid of about 60mm x 60mm. Remove hardener lid (part B) and fit the hardener bottle through the slot in the resin lid (removed resin lid and reattach).

(2) Allow hardener to fully drain into the resin. Proper curing cannot be assured if hardener is not fully drained. Hardener and resin will not react until both components are mixed thoroughly and therefore EPAR S may be prepared in this manner before the product is required for use.

(3) Remove resin lid and thoroughly mix the hardener and resin using a heavy-duty electric drill fitted with a grout mixer. During the mixing process scrape the bottom and sides of the container at least once with a spatula or similar tool to ensure all components are incorporated.

(4) Mixing should continue for approximately 3 - 5 minutes. Take care to avoid air entrapment. Use immediately once mixed.

Stratmore.

Leading solutions for construction.

EPAR S

TECHNICAL DATA Continued

4.0 APPLICATION INSTRUCTIONS (continued)

4.1 **POT LIFE:** Pot life is the time from when the product is mixed until it is no longer readily usable/workable. The epoxy must be poured/placed before end of the pot life. EPAR S Fast Set-Cold Cure will completely set in about the same time as EPAR S standard, but will continue to set down to 0oC. EPAR S standard will not cure below 10oC. In all cases, increasing the quantity mixed will decrease pot life. Small quantities will generally take longer to initially cure. The substrate temperature will also affect curing time – the colder the substrate, the longer the initial cure and vice versa. Maintaining a warmer substrate will help speed up initial cure and development of strength.

4.2 In cold conditions, warming the hardener and resin (by standing the pots in warm water) will help mixing and initial setting, as will warming the substrate. Note that warming large quantities of product will significantly reduce the pot life. Do not mix more than can be placed within pot life.

4.3 **PLACING:** Place EPAR S immediately after mixing is completed, observing surface preparation requirements.

4.4 **LAYERS:** When placing EPAR S in thicknesses greater than 40 mm, apply the EPAR S in layers. Allow each layer to harden and cool before pouring next layer. Ensure each layer is poured within 6 hours of the previous layer to ensure proper bonding occurs.

4.5 Once the epoxy has been poured into position and started to cure, do not disturb or attempt to rework as this will lead to defects in the cured epoxy. Allow to cure for at least 4 days before subjecting to any loads, etc.

4.6 CLEAN-UP. Tools and equipment may be cleaned before hardening commences by washing with EPAR CLEAN UP SOLVENT. Clean hands and skin with soap and hot water.

5.0 PACKAGING

Standard:	900 ml, 3.5 litre and 18 litre packs.
Fast Set-Cold-Cure:	950 ml, 3.7 litre and 18.5 litre packs.

6.0 ADDITIONAL INFORMATION

Read this data sheet in conjunction with the product labels. Wear appropriate personal protective equipment when mixing and using this product. Use in a well-ventilated area. Refer to Material Safety Data Sheets for hardener and resin before use for first aid and handling details.

Curing will take longer at lower ambient temperatures and when smaller quantities are applied. For cold temperature curing, use EPAR S Fast Set-Cold Cure.

For applications not covered or for further information, contact the manufacturer prior to use.

EPAR S

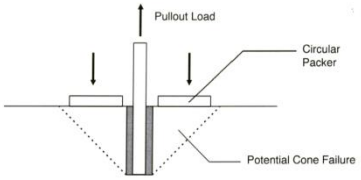
TECHNICAL DATA Continued

7.0 PULL-OUT TEST DATA

EPAR S is recommended for vertical/downward inclined applications such as grouting studs threaded rod or deformed bars in concrete. EPAR S has a high proportion of epoxy resin to fillers ratio and therefore achieves excellent pullout strengths, as it is able to readily key into the concrete surface and wet through surface dust that may be present.

EPAR S has been used in numerous applications throughout NZ, including base plate and bolt fixing for generators, building reconstruction (for example, CIRCA theatre in Wellington), crane rail base plates, and numerous bolts and starter rod projects.

EPAR S Pull Out Load



This test was conducted by Materials Advisory & Testing Service limited to determine the viability of a test programme to establish the failure load of epoxy independent of both cone failure of concrete and tensile failure of the bar. Cone failure of concrete was prevented by restraining the concrete during the test using a circular packer with a 26mm diameter central hole through which the D16 rod was pulled. Using a shallow embedment depth for the test prevented bar failure. Load was applied at 13590kg/minute.

Results

Failure load was measured at 5182kg. The mode of failure was shear within the epoxy. No debond or shear to either concrete/epoxy interface or steel/epoxy interface.

Calculating the load required to induce a normal cone failure in concrete (40MPa) at an embedment depth of 52mm using a D16 rod is 1145 kilograms. Thus, the test above showed the load required to induce epoxy failure (at 52mm) was approximately 4 times the load that would result in a tensile cone failure of the concrete. The concrete would fail well before the epoxy failed, and therefore any application would require design of sufficient concrete strength in proportion to bar size and depth of hole.

When using EPAR S, the hole diameter needs only to be large enough to allow easy installation of the bar – a hole 4mm larger than the diameter of the bar is recommended. Standard hole depth is usually 10 times the bar diameter.