

S&P Resin 220 HP

High performance epoxy adhesive



A Simpson Strong-Tie® Company

The information in this technical data sheet is valid for the S&P range of products, systems and solutions.
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DESCRIPTION

S&P Resin 220 HP is a high performance, thixotropic, grey, two-component epoxy adhesive, that has been specially developed for bonding carbon fibre laminates (S&P C-Laminate). The material properties of the fresh and the hardened adhesive have been tested in S&P reinforcement systems.

WHERE TO USE

- Bonding of :
 - S&P C-Laminate on concrete and Steel
 - Steel strips and plates on concrete

PERFORMANCE FEATURES

- Ready-to-use (no filler required)
- Easy to use
- Optimal pot life
- High performance
- Very good adhesion to most construction materials
- Remains firm on both vertical and horizontal surfaces, such as ceilings
- Cures with low shrinkage
- Formulated with a low solvent concentration

GENERAL FEATURES

PRODUCT DATA

Generic description

S&P Resin 220 HP

Appearance

Comp. A – Light grey epoxy resin

Comp. B – Black hardener

Size

5 kg unit (comp. A 3.33 kg + comp. B 1.67 kg)

15 kg unit (comp. A 10 kg + comp. B 5 kg)

42 x 5 kg units per pallet

28 x 15 kg units per pallet

Storage

24 months in original packaging

Optimal storage +10°C to +25°C

CERTIFICATION



This product conforms to EN 1504-4:2004.

Principles and methods according to EN 1504-9: 2008

Principle 4: Structural strengthening:

- Method 4.3: Bonding plate reinforcement



Property	Test Method	Unit	Minimum requirements according to EN 1504-4			Value		
Density	In house test	kg/dm ³	-			1.55 - 1.65		
Mix ratio A:B	-	By weight	-			2 :1		
Pot life at 21°C	In house test	Minutes	-			40		
Pot life at 30°C	In house test	Minutes	-			30		
Open time at 21°C	EN 12189:2000	Minutes	-			90		
Open time at 30°C	EN 12189:2000	Minutes	-			60		
Final cure	-	Days	-			7		
Application temperature	-	°C	-			+8 °C to +30 °C		
Hardness Shore D	In house test	HD	-			> 70		
Compressive strength	EN 12190:1999	MPa	≥ 30			≥ 90		
E-Modulus (compression)	EN 13412:2008	MPa	≥ 2000			≥ 7000		
Coefficient of thermal expansion	EN 1770:1999	µm/m °C	≤ 100			≤ 50		
Tg Glass transition temperature	EN 12614:2006	°C	≥ 40			58		
Linear shrinkage	EN 12617-1:2004	%	≤ 0.1			0.01		
EN 1504-9 Method 4.3: Bonding plate reinforcement								
Adhesion steel to steel (shear strength)	EN 12188:2000	MPa	50° ≥ 50	60° ≥ 60	70° ≥ 70	50° ≥ 50	60° ≥ 60	70° ≥ 70
Adhesion steel to steel (tensile strength)	EN 12188:2000	MPa	≥ 14			≥ 14		
Durability of structural bonding plate Thermal cycles Warm-moist environment	EN 13733:2002	-	No failure in specimens			Pass		

Above test results are carried out in laboratory conditions at +20 °C and 65 % RH unless otherwise stated.

PREPARATION

Surface Preparation

Reinforcement may only take place if the substrate for the S&P C-Laminate has an inherent tensile strength of at least 1.5 N/mm². The substrate must be free from substances which may impair adhesion (oil, grease, wax, etc.), and must additionally be dust-free, clean, hard and dry (at least to a high extent). Maximum substrate humidity: 4%.

Age of concrete depending on climate: at least 3 to 6 weeks. Further substrate preparation details regarding surface bonded and near surface (slot-applied) applications of S&P C-Laminate can be found on the S&P C-Laminate technical data sheet and application instructions.

Indications

When reinforcing structural components with the S&P FRP System, it must be possible to transmit the tensile forces from the laminates to the load-bearing substrate through the adhesive. Mechanical processing (cleaning) of the substrate is therefore always essential. The usual methods, such as grinding, milling, sandblasting, etc., may be used. Any unevenness in the substrate must be eliminated before the application of any type of S&P C-Laminate. The operation is essential, as it prevents any deflection forces from arising under tension. Variation in level must not exceed 0.5 cm over a length of 200 cm. Suitable material: S&P Resin 230 HP levelling mortar.

APPLICATION

S&P Resin 220 HP should be applied by well-trained and experienced specialist.

Mixing/Application

- Stir the individual components separately and then add component B to component A. Mix thoroughly until the colour is uniformly grey and free of any streaks. Place the mixed material in a different container in order to reveal any inadequacies in the mixture. Mix slowly (< 400 rev/min.) in order to avoid mixing air into the mixture.
- Before the adhesive is applied, the surface of the laminate must be cleaned with a cloth soaked in S&P Cleaner.
- Apply a 2–3 mm roof-shaped layer of adhesive uniformly onto the laminate.
- Within the time the adhesive remains workable, press the laminate uniformly onto the substrate with a pressure roller until the adhesive is pressed out of the joint on both sides. Residual minimum adhesive thickness: 1 mm; maximum thickness: 4 mm.
- Adhesive is best applied to the laminate using a special gluing set.
- Once the adhesive has hardened, check that the bonding is complete over the entire area by tapping or knocking across the surface.
- Fire protection requirements must be complied with, as epoxy adhesives generally have limited temperature resistance.
- The surface of the laminates can be painted over to ensure visual uniformity.

Application temperature

- Workable from +8 °C to +30 °C. Substrate temperature must be at least 3 °C above dew point temperature.

Consumption

- Approx. 1.6 kg/m² per mm layer thickness

ACCESSORIES

S&P offers specific tools and accessories to facilitate the processing of resins.

TESTING

Please contact us if you require any information regarding tests that have been conducted. Test reports may be available.

CLEANING

Tools cleaning

Mixture that has not yet hardened can be washed off with S&P Cleaner. Mixture that has hardened can only be removed by mechanical means.

WARNING

The shelf life of the resin must be respected.

S&P's range of products are for industrial use. They must be installed by specialised personnel and competent professionals with adequate training. The installation instructions must be followed and can be found in S&P application manuals and several "Guideline" documents / existing technical notes.

HEALTH & SAFETY

Important safety instructions

For detailed safety information, we recommend that you see the current safety data sheet which is available on www.sp-reinforcement.eu or you can contact us on +41 41 825 00 70.

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