

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.
Please note that the information in your country may vary. Visit sp-reinforcement.eu to find your local branch.

DESCRIPTION

S&P Resin 220 HP is a high performance, solvent-free, 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 the reinforcement system and are incorporated into the FRP Lamella software.

WHERE TO USE

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

PERFORMANCE FEATURES

- Ready-to-use (no filler required)
- Good stability
- High performance
- Easy to mix and apply
- Very good adhesion of most construction materials
- Remains firm on both vertical and horizontal surfaces, such as ceilings
- Hardens with low shrinkage
- Solvent-free
- Impermeable to water and water vapour

GENERAL FEATURES

PRODUCT DATA

Generic description

S&P Resin 220 HP

Appearance

Comp. A – Light grey epoxy resin solution
Comp. B – Black hardener for epoxy resin

Size

5 kg and 15 kg units
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,
homogenise before use; slowly warm up and homogenise
frozen or super-cooled material

CERTIFICATION



This product conforms to EN 1504-4:2004.

Principles and methods according to EN 1504-9: 2008

Principle 4: Structural strengthening (SS):
- Method 4.3: Bonding plate reinforcement



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.

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 +35 °C. Substrate temperature must be at least 3 °C above dew point temperature.

Consumption

- Approx. 1.6 kg/m² per mm layer thickness

Technical data	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		
Open time at 21°C	EN 12189:2000	Minutes	-			90		
Open time at 35°C	EN 12189:2000	Minutes	-			60		
Final cure	-	Days	-			7		
Application temperature	-	°C	-			+8 °C to +35 °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.

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

ACCESSORIES

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

TESTING

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.

CLEANING

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.

WARNING

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.

HEALTH & SAFETY

The information in this technical data sheet is valid for products delivered by S&P Clever Reinforcement Company AG, Switzerland. Please note that the information in other countries may differ, and always use the local product data sheet in each respective country. The information and data in this technical data sheet serve to ensure the normal intended use and normal application suitability; the information and data are based on our knowledge and experience. They do not absolve the user from their own responsibility to check the suitability and application method. The rights to make changes to product specifications are reserved. Furthermore, our general sales and delivery terms apply. The current, most recent product data sheet is valid, and should be requested from us.

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