

S&P ARMO-crete® w

Shotcrete mortar with reactive components (wet-spray method)



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 ARMO-crete® w is a polymer modified wet spray shotcrete based on inorganic binders, polymer fibres and selected aggregates. It meets the requirements of Class R4 according to the EN 1504-3:2005 standard. The reactive components contained in the product bind with the amorphous silica on the carbon fibre reinforcement (S&P ARMO-mesh®). This ensures an intensive adhesion between the reinforcement and the shotcrete S&P ARMO-crete® w.

WHERE TO USE

- Universal application possibilities in civil engineering, building construction, tunnels and gallery construction
- Use as a levelling mortar as well as for thick layer reprofiling
- Repair, rehabilitation and strengthening of existing structures in combination with S&P ARMO-mesh®
- Constructional reinforcement with S&P ARMO-glass fibre reinforcement

PERFORMANCE FEATURES

- High adhesion to most conventional concrete substrates
- Easy application (thick layers are possible)
- Low shrinkage coefficient
- Chloride free
- Resistant to sulphates
- High resistance to frost and de-icing salts
- Non-flammable (hardened product) A1 according to EN 13501-1
- Meets the requirements of Class R4 according to EN 1504-3 : 2005

GENERAL FEATURES

PRODUCT DATA

Generic description

S&P ARMO-crete® w

Appearance

Dry mix of grey fine aggregates

Size

25 kg bags

Storage

Shelf life is 12 months from the date of production providing it is kept dry and in original packaging



CE-MARKING



S&P ARMO-crete® w conforms to EN 1504-3 : 2005

Ref:ARMOcretew.TDS.EU-EN.V4

06.2023

PREPARATION

Surface Preparation

The substrate must be pretreated by sandblasting or hydro-mechanically means (roughness 3-5 mm). The substrate must have a compressive strength of $>25\text{N/mm}^2$ and an adhesive tensile strength of $>1.5\text{N/mm}^2$. The substrate must be clean and free from loose parts, dust and contaminants (e.g. oil). Pre-wet the substrate for at least 24 hours before application of the shotcrete. The shotcrete is applied to a damp substrate (capillary pores saturated with water). Excess water should be removed with a sponge, by vacuum cleaning or (oil free) compressed air before application. Clean exposed rebar and pre-treat with a corrosion inhibiting system.

Mixing

See product packaging for water dosage. Slowly add the contents of the 25 kg bag, mixing at a constant speed with a mechanical mixer, until a homogeneous, lump-free mixture is obtained. Leave the mixture to rest for 1–2 minutes before applying it. Do not add more water once the setting process has started.

APPLICATION

S&P ARMO-crete® w must be applied in a temperature range between $+5\text{ °C}$ and $+35\text{ °C}$ (ambient and substrate temperature). After application, the shotcrete must be kept humid and protected against heat and wind for 3–5 days. Ideally, S&P ARMO-mesh® is worked into the shotcrete using the "wet-in-wet" method. If, during the further course of work, a second layer needs to be applied to an already hardened layer, the surface must first be cleaned with high pressure water. S&P ARMO-crete® w can be applied using traditional wet spray pumps and equipment, or manually (bonding bridge required).

MECHANICAL PROPERTIES

S&P ARMO-crete® w Shotcrete mortar with reactive components (wet-spray method)			
Property	Test method	Minimum requirement according to EN 1504-3, R4 mortar	Value
Maximum aggregate size	-	-	2 mm
Water dosage per 25 kg bag	-	-	See packaging
Consumption	-	-	~20.5 kg/m ² per cm thickness
Application thickness	-	-	5-50 mm
Pot life at 20 °C	-	-	~ 40 minutes
Application temperature	-	-	5-35 °C
Compressive strength	EN 12190	$\geq 45\text{ N/mm}^2$ (28 days)	$\geq 20\text{ N/mm}^2$ (1 day)
			$\geq 40\text{ N/mm}^2$ (7 days)
			$\geq 55\text{ N/mm}^2$ (28 days)
Flexural strength	EN 12190	-	$\geq 5\text{ N/mm}^2$ (1 day)
			$\geq 7\text{ N/mm}^2$ (7 days)
			$\geq 8\text{ N/mm}^2$ (28 days)
E-Modulus	EN 13412	$\geq 20000\text{ N/mm}^2$ (28 days)	$\geq 25000\text{ N/mm}^2$
Capillary absorption	EN 13057	$\leq 0.5\text{ kg/(m}^2\cdot\text{h}^{0.5})$	$\leq 0.3\text{ kg/(m}^2\cdot\text{h}^{0.5})$
Carbonation resistance	EN 13295	$D_k \leq$ Reference concrete MC(0.45)	Pass
Bond strength	EN 1542	$\geq 2\text{ N/mm}^2$	$\geq 3\text{ N/mm}^2$
Bond strength after 50 freeze-thaw cycles	EN 13687-1	$\geq 2\text{ N/mm}^2$	$\geq 2.5\text{ N/mm}^2$
Chloride ion content	EN 1015-17	≤ 0.05	0.01%

Tests were carried out at $+21\text{ °C} \pm 2\text{ °C}$ and $60\% \pm 10\%$ RH mixing with 12 % water, unless other conditions are required by the specific test standard.

TESTING

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

CLEANING

Tools cleaning

Tools and application equipment must be washed immediately after use. If the product hardens, it can only be removed by mechanical means.

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.

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.

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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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