

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 wet-spray mortar is a polymer modified mortar based on organic binders, polymer fibres and selected aggregates. The additional reactive components, which are mixed into the shotcrete mortar, bind with the amorphous silica on the carbon fibre reinforcement (S&P ARMO-mesh®). This ensures an intense adhesion between the reinforcement and the shotcrete S&P ARMO-crete® w.

WHERE TO USE

- Universal application possibilities in buildings, underground structures, tunnels and gallery constructions
- Renovation and strengthening of existing building materials in combination with S&P ARMO-mesh®
- Reprofiling in cases where there is extensive damage due to abrasion (wastewater and stormwater drainage systems)
- Constructional reinforcement with S&P ARMO-glass fibre reinforcement

PERFORMANCE FEATURES

- High adhesion to most conventional concrete substrates
- Low shrinkage coefficient
- Chloride free
- Resistant to sulphates
- Easy application (thick layers are possible)
- High resistance to fire
- High frost resistance
- High abrasion resistance
- Complies with the requirements of EN 1504-3 : 2005

PRODUCT DATA

Generic description

S&P ARMO-crete® w

Appearance

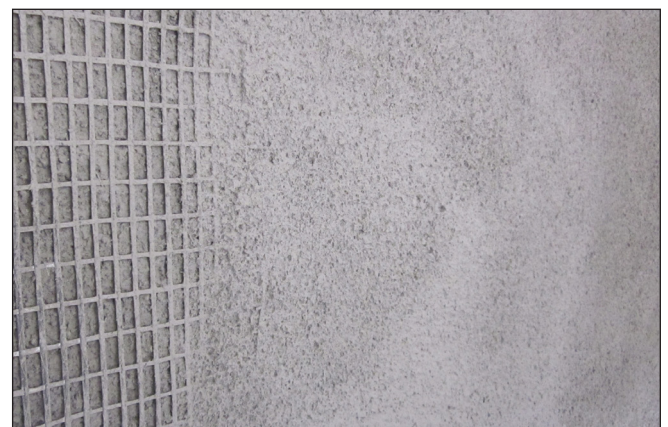
Dry mix of grey fine aggregates

Size

25 kg bags

Storage

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



GENERAL FEATURES

CE-MARKING



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

PREPARATION

Surface Preparation

The substrate must be sandblasted or hydro-mechanically prepared. The substrate must be clean and free from loose parts, dusts and contaminants (e.g. oil). Pre-wet the substrate for at least 24 hours before application of the spray mortar to obtain saturation of the capillary pores. Dry the substrate until a moist surface is obtained. Remove standing water with a sponge, by vacuum cleaning or with (oil-free!) compressed air. Clean exposed rebar and pre-treat with a corrosion inhibiting system.

Mixing

Pour clean water into a clean container, according to the desired consistency (see packaging on product for water dosage). Slowly add the contents of 25 kg bag, constantly mixing it with a mechanical mixer until a homogenous, lump-free mixture is achieved. Leave the mixture to rest for 1–2 minutes before applying it. Do not add more water or mix if the material begins to lose its consistency.

APPLICATION

S&P ARMO-crete® w must be applied in a temperature range between +5 °C and +35 °C. The shotcrete mortar must be kept humid and protected against heat and wind for 3–5 days after application. Ideally, S&P ARMO-mesh® is worked into the shotcrete mortar using the "wet-in-wet" method. If two shotcrete mortar layers are applied, the first shotcrete layer must be cleaned with water pressure before the second shotcrete layer is applied. S&P ARMO-crete® w can be applied using the traditional wet spray pumps and equipment, or manually. The S&P ARMO-crete® w is used as a levelling mortar, as well as a sprayed mortar, for the structural retrofitting in combination with S&P ARMO-mesh®.

Consumption rate

The consumption depends on the application type (overhead or vertical application), on the substrate condition and on the nozzle operator. Usually, a consumption rate of approx. 20.5 kg/m² per cm thickness is used in calculations.

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	≥ 45 N/mm ² (28 days)	≥ 20 N/mm ² (1 day)
			≥ 40 N/mm ² (7 days)
			≥ 55 N/mm ² (28 days)
Flexural strength	EN 12190	-	≥ 5 N/mm ² (1 day)
			≥ 7 N/mm ² (7 days)
			≥ 8 N/mm ² (28 days)
E-Modulus	EN 13412	≥ 20000 N/mm ² (28 days)	≥ 25000 N/mm ²
Capillary absorption	EN 13057	≤ 0.5 kg/(m ² *h ^{0.5})	≤ 0.3 kg/(m ² *h ^{0.5})
Carbonation resistance	EN 13295	D _k ≤ Reference concrete MC(0.45)	Pass
Bond strength	EN 1542	≥ 2 N/mm ²	≥ 3 N/mm ²
Bond strength after 50 freeze-thaw cycles	EN 13687-1	≥ 2 N/mm ²	≥ 2.5 N/mm ²
Chloride ion content	EN 1015-17	≤ 0.05	0.01%

Tests were carried out at +21°C ± 2°C and 60 % ± 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.

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.

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.

Head Office

S&P Clever Reinforcement Company AG
Seewernstrasse 127
CH-6423 Seewen
Phone: +41 41 825 00 70
Fax: +41 41 825 00 75
Web: www.sp-reinforcement.ch
E-Mail: info@sp-reinforcement.ch