

# S&P ARMO-crete® d

Shotcrete mortar (dry-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.  
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## DESCRIPTION

S&P ARMO-crete® d dry shotcrete mortar consists of graduated aggregates. A reactive component is added into the shotcrete mortar, which reacts with the S&P ARMO-mesh®. This process ensures an intensive adhesion between the carbon fibre reinforcement and the shotcrete mortar. S&P ARMO-crete® d can be delivered in different grain sizes, additives, as well as cement.

## 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®
- Constructional reinforcement with S&P ARMO-glass fibre reinforcement

## PERFORMANCE FEATURES

### Advantages S&P ARMO-crete® d

- Very high resistance
- Chloride free
- High adhesion to most conventional concrete substrates
- Easy application (thick layers are possible)
- High resistance to fire

### Additionally with microsilica

- Low shrinkage coefficient
- Low penetration of chlorides
- Higher compressive strength
- High frost resistance and resistant to thermal shock

### Additionally with accelerator

- Greater layer thickness

### Additionally with sulphate-resistant cement

- High sulphate resistance

## PRODUCT DATA

### Generic description

S&P ARMO-crete® d

### Appearance

Dry mix of grey fine aggregates

### Size

40 kg bags or in bulk

### Storage

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



## PREPARATION

### Surface Preparation

The substrate must be sandblasted or hydro-mechanically prepared (roughness 3–5 mm). The substrate must be clean and free from loose parts, dusts and contaminants (e.g. oil). Pre-wet the substrate before application to obtain complete 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 (oi-free) compressed air. Clean exposed rebar and pre-treat with a corrosion inhibiting system.

## APPLICATION

S&P ARMO-crete® d must be applied in a temperature range between +5 °C and +30 °C. The shotcrete mortar must be kept humid and protected against heat and wind for 3–7 days after application. If two shotcrete mortar layers are applied, the first shotcrete layer must be cleaned with water pressure before the second shotcrete layer is applied. It is also possible to fix the S&P ARMO-mesh® with different clamp systems. The S&P ARMO-crete® d is used as a levelling mortar, as well as a mortar for 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 27–30 kg/m² per cm thickness is used in calculations.

## MECHANICAL PROPERTIES

S&P ARMO-crete®d Shotcrete mortar (dry-spray method)	
PH	12
Density	~2.2–2.3 g/cm³
Max. grain size	4 mm or 8 mm
Water dosage	Approx. 10 % by weight
Application temperature	5–30 °C
Compressive strength (SN EN 12390-3 / 12504-1) After 7 / 28 days:	<b>4mm grain size:</b> Without additives ca. 35 / 45 N/mm² With accelerator (S) ca. 30 / 35 N/mm² With microsilica (M) ca. 40 / 50 N/mm² With S & M ca. 35 / 45 N/mm²  <b>8mm grain size:</b> Without additives ca. 45 / 50 N/mm² With accelerator (S) ca. 35 / 40 N/mm² With microsilica (M) ca. 50 / 55 N/mm² With S & M ca. 40 / 45 N/mm²
Tensile strength (EN 196-1)	> 6 N/mm² (after 28 days in water)
Adhesive strength on concrete (EN 1542)	> 2 N/mm² (after 28 days)
Modulus of elasticity (SIA 262/1-G)	< 32,000 N/mm²
Frost resistance (SN 640 461)	High
Frost/de-icing salt resistance	High (M variant)
Chloride ion penetration (SIA 262/1-B)	< 0.6 % of the cement mass (M variant after 6 months)
Temperature change compatibility	R4 (M variant)
Capillary water absorption (EN 1062-3)	w < 0.3 kg / m²h <sup>0.5</sup>
Possible layer thickness	4 mm grain: 1.2–4 cm (S variant 1.2–6 cm) 8 mm grain: 3–8 cm (S variant 3–12 cm)
Concrete group (according to DIN)	SpC35/45

## 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

### Special precautions

This product contains cement. Avoid contact with eyes and skin. Always wear rubber gloves and protective goggles. Empty packaging must be disposed of according to local legal environmental regulations.

### 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](http://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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