Polymer-modified, dry-spray, structural repair concrete

webercem spray DS

About this product

webercem spray DS is a pre-bagged, ready-to-use, polymer-modified, cement-based structural concrete. It contains graded inert limestone aggregates and dust suppressants. The formulation has been designed specially for dry process spray application to give high strength, low rebound and wastage, and to maximise the application thickness.

Conformity testing to BS EN 1504-3 has confirmed that **webercem spray DS** meets the requirements for a Class R4 repair product.

Technical data

The values given below are indicative of typical properties that are achievable on sprayed material in good conditions by an experienced contractor.

Dry density	2250 kg/m³
Initial set	2 – 3 hours

Performance to BS EN 1504-3

Performance characteristic	Method	BS EN 1504-3 requirement	Pass/ Fail
Compressive strength	EN 12190	≥ 45 MPa	Pass
Chloride ion content	EN 1015-17	≤ 0.05%	Pass
Adhesive bond	EN 1542	≥ 2.0 MPa	Pass
Carbonation resistance	EN 13295	d_k ≤ control concrete (1.3)	Pass
Elastic modulus	EN 13412	≥ 20 GPa	Pass
Thermal compatibility Part 1 Freeze/thaw	EN 13687-1	Bond strength after 50 cycles ≥ 2.0 MPa	Pass
Capillary absorption	EN 13057	≤ 0.5 $kgm^{-2}h^{-0.5}$	Pass
Reaction to fire	EN 13501-1	A1	N/A

Uses

- Repairs to large areas of structural concrete
- Repairs of highway structures: bridge columns, piers, deck soffits, beams, abutments, parapets, retaining walls, tunnels and viaducts
- Repairs of marine structures: jetties, piers, quays, seawalls, concrete offshore platforms, docks and drydocks
- Repairs of fire damaged concrete structures
- Sealing of mine roadways and tunnels
- Structural enhancement of mineshafts
- Structural encasement of steel sections, pylons, chimneys, cooling towers
- Rock and embankment stabilisation

Features and benefits

- Economical – low rebound
- Safe to use and handle. Relatively low dust emission, no siliceous aggregates, no caustic accelerators
- High-build – up to 150 mm thickness can be applied in one pass on vertical and overhead faces encapsulating existing steel reinforcement
- Rapid strength gain
- Low permeability to water and chlorides
- Complies with Highways England specifications for repairs to highway structures
- Class 4 repair product meeting the requirements of BS EN 1504-3

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Preparation

As with all repairs and applications it is essential to apply to a clean, sound surface free from all grease, oil, dust and loose material.

Concrete

Concrete substrates must be adequately prepared by a suitable mechanical method such as scabbling, grit blasting, water jetting or needle gunning, or by such other means as appropriate. Concrete must be carefully prepared to give a clean, freshly-exposed surface. The outer limits of concrete patches should be cut square to avoid feather edges.

Old concrete surfaces contaminated with oil or grease must be cleaned with a suitable detergent. Care must be taken to ensure that the oil or grease is removed from the surface and not simply spread over a larger area.

Steel Substrates

Reinforcing bars should be exposed leaving a clear gap at least 25mm behind the bars to allow for full encapsulation. Steel bars should be free of loose rust and grease. Ideally they should be grit blasted to a uniform grey metal finish to achieve first quality to BS 7079-A1 followed by degreasing with a suitable solvent.

Reducing suction

Before using webercem spray DS, the concrete substrate must be thoroughly pre-wetted for at least 30 minutes and then all surplus water removed. Water from the spray nozzle followed by high pressure air is the method commonly adopted.

Application

Guidelines on the method of working are detailed in the *Code of Practice for Sprayed Concrete* published by the Concrete Society and should be strictly observed.

webercem spray DS should be emptied from the bags directly into the hopper of the dry process spraying machine. The equipment should be balanced so as to produce a steady stream of material with minimal pulsing.

The amount of water added at the spraying nozzle will be controlled by the nozzleman – too low an addition will increase rebound and dust emission; too wet a mix will slump. The correct amount of water can be judged by the appearance of the sprayed concrete; any glossiness of the surface should be avoided.

In case of a long delay between applied coats of the sprayed concrete, the surface of the newly applied hardened concrete should be water jetted using maximum air pressure and water flow through the nozzle to ensure that any laitance and all weak or loose material has been removed.

The surface should be allowed to drain before proceeding with the next coat.

webercem spray DS can be applied down to 15 mm thickness but, because of the higher cement content, (due to aggregate loss through rebound) there is the likelihood of greater shrinkage. The recommended minimum thickness is 25 mm. The recommended minimum thickness for protection over steel is 40 mm.

Finishing

Any necessary trowelling or profiling should be done immediately after spraying has finished.

An 'as-sprayed' appearance is recommended, but if overcoating is to follow, finish with a wooden float or damp sponge. Avoid the use of steel floated finishes as these normally result in crazing and cracking.

Curing

This product must be properly cured if it is to achieve its optimum properties. Cure immediately with a high efficiency curing membrane unless the surface is to be overcoated or subject to chemical impregnation, in which case cure with polythene sheeting and/or wet hessian for a minimum of 3 days.

Protect from frost.

Packaging

webercem spray DS is supplied in 25 kg polylined paper sacks.

Yield

Approximately 12 litres per 25 kg bag, but allowance must be made for rebound and profiling.

Storage and shelf life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 12 months from date of manufacture.

Health and safety

Contains cement (Contains chromium (VI). May produce an allergic reaction). Harmful by inhalation. Irritating to eyes and skin. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical help. After contact with skin, wash immediately with plenty of soap and water. Wear suitable protective clothing, gloves and eye/face protection.

For further information, please request the Material Safety Data Sheet for this product.

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline
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Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. Please contact the relevant Customer Services Team below for all product orders and enquiries.

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