Fosroc®
Renderoc® ST 06

constructive solutions

Surface repair polymer modified protective cementitious mortar for applications up to 5mm

Uses

Renderoc ST 06 is suitable for reinstatement of effective concrete cover on precast and in-situ reinforced concrete making it a solution for rectifying low concrete cover. Suitable as a protective surface cementitious mortar for applications from 0.5mm to 5mm deep conforming to requirements of EN1504-3 Class R3.

Renderoc ST 06 can be used to seal shallow non-moving hairline shrinkage cracks.

Product functions as a barrier protecting concrete from the ingress of water, chloride ions, carbon dioxide etc from atmosphere.

Low permeability to potentially damaging water, CO_2 and chloride ions.

Advantages

- Easy to mix and apply
- Suitable for vertical, over-head and horizontal applications
- Meets EN1504 Class R3 requirement
- Excellent bond to SSD (saturated surface dry) concrete substrates -There is no need of primer unless the substrate is determined as porous by the site engineer.
- Suitable as a blow hole filler, up to 5mm deep
- Low permeability to potentially damaging water, CO_2 and chloride ions.
- Excellent thermal compatibility with concrete
- RCS (Respirable Crystalline Silica) Hazard Free*

Description

Renderoc ST 06 consists of powder and polymer components. The powder is added to the liquid, the mixing ratio depends on the required consistency and use.

The powder consists of a blend of cements, graded aggregates and chemical additives, with a maximum grain sizes of 0.5mm

The liquid component, based on modified acrylic polymers, gives Renderoc ST 06 a creamy consistency with extremely good application and barrier characteristics.

The product exhibits excellent thermal compatibility with concrete and is fully compatible with other Renderoc mortars and Dekguard coatings.

*Renderoc ST 06 is classified not hazardous for RCS in accordance with Australian Inventory of Industrial Chemicals; contains <0.1% RCS.

Design Criteria

Renderoc ST 06 is designed to be applied in thin applications to new and old concrete or masonry surfaces to "fair up" the surface and improve resistance to carbonation and chloride ion ingress. The product can be applied at thicknesses down to 0.5mm and up to 5mm in a single layer.

Application Instructions

Preparation

Surfaces must be clean and sound, with no traces of loose material, cement paste, laitance, dust, plaster, oil, grease, corrosion deposits or algae.

Prepare the surfaces by abrasive grit blasting or light scabbling. Remove oil and grease with suitable detergent.

Finally the cleaned surfaces should be blown clean with oil free compressed air before continuing.

Substrate priming

All prepared areas should be thoroughly soaked with clean water prior to application of Renderoc ST 06, to achieve a saturated surface dry condition. Any residual surface water should be removed prior to application.

Under normal circumstances priming is not required. However, porous substrates may require sealing with Nitobond AR. This is scrubbed onto the pre-wetted substrate and allowed to become tacky before applying Renderoc ST 06.

Mixing instructions

A forced action mixer is essential for thorough mixing. Mix at a slow speed (400/500 rpm) in a suitably sized drum using appropriate equipment such as a 120/140mm helical mixing paddle fitted to a heavy-duty 1600W mixer. Free fall cement mixers are not suitable.

Renderoc ST 06 is a two component pre measured product. Thoroughly shake the bottle of Part A Liquid and empty entire contents into a clean 20L mixing pail. Slowly add entire contents of Part B Powder to Part A Liquid and mix at slow speed for a minimum of three minutes, until fully homogeneous and lump free. Allow material to stand for two minutes before applying to the prepared primed surface.

Application

Voids / blow holes up to 50mm deep and no more than 25mm in diameter should be separately filled as a prior operation using Renderoc ST 06 and allowed to initially set.

Note: Other than when filling fissures, voids, blow holes as described above, the maximum applied thickness of Renderoc ST06 in single application is 5mm.

Due to the easy workability of the product, a variety of instruments such as trowel, scraper and filling knife can be used. After mixing, material can be taken directly from the mixing pail, or subdivided onto spot boards for individual applicators.

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Properties

Material tested at liquid : powder ratio of 0.22 and temperature at 20°C

Test method	Standard	EN 1504-3 Class R3 Requirement	Test result
Compressive Strength	EN 12190:1999	≥ 25 MPa	31.5 MPa
Flexural Strength	EN 12190:1999	-	10.3 MPa
Bond strength by pull off*	EN 1542:1999	≥ 1.5 MPa	3.7 MPa
Chloride ion content	EN 1015-17:2000	≤ 0.05 %	0.01%
Resistance to carbonation D_k	EN 13295:2005	D_k≤ ref concrete MC(0.45)	Pass
Shrinkage and Expansion	EN12617-4:2002	≥ 1.5 MPa	Shrinkage 3.5 MPa Expansion 3.2 MPa
Capillary absorption	EN 13057:2002	≤ 0.5 kg/m^{2}h$^{0.5}$	0.04 kg/m^{2}h$^{0.5}$
Modulus of Elasticity in compression	EN 13412:2008	EN1504 Class R3 requires MoE in compression ≥ 15 Gpa	15.1 GPa
Coefficient of thermal expansion	EN 1770:1990	Declared value	16.9 x 10^{-6}/°C
Chloride Diffusion	Nordtest NT Build 443	-	0.6 x 10^{-12} m^2/sec
Chloride Penetration	Nordtest NT Build 443	-	1mm of Renderoc ST 06 provides the equivalent protection of 7mm of standard 40MPa concrete[1]
Carbonation Penetration	EN 13295:2005	Dk ≤ ref concrete MC(0.45)	1mm of Renderoc ST06 provides the equivalent protection of 6mm of standard 40MPa concrete[2]

Clarification of property values: The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary.

*Excellent bond to concrete substrate after repeated wetting and drying cycles.

[1] Standard 40MPa concrete chloride diffusion co-efficient 28x10^{-12}m^2/sec

[2] Standard 40 MPa concrete as per EN 1766:2000, w/c 0.45, cement content 395-410 kg/m^3

Build-up

When applying multiple layers, allow the first application to dry for between 2 to 4 hours (at 20°C). Lightly scratch and dampen surface between layers.

Low temperature working

Normal precautions for winter working with cementitious materials should be adopted. In cold conditions down to 5°C, both components should be kept at 15°C to 25°C. Protect applied product from freezing for the first 24 hours.

Note: working time and time taken to gain strength will be increased at lower temperatures.

High temperature working

At ambient temperatures above 35°C both components should be stored in the shade. Note working times will be reduced at elevated temperatures. When working at >30°C, add 250ml of water to part A to produce a good mix.

Curing

Renderoc ST 06 generally does not require curing, but in fast drying conditions (e.g. strong sunshine or high wind velocity) applying a curing compound could be necessary. The use of Nitobond AR or Concure A99 is recommended, see separate data sheets. Covering with polythene sheeting taped down at the edges is an acceptable alternative.

In cold conditions, the finished repair must be protected from freezing.

Overcoating with protective decorative finishes

Renderoc ST 06 is extremely durable and will provide long-term protection to the embedded steel reinforcement within the repaired locations. The surrounding parts of the structure will generally benefit from the application of a protective barrier/ decorative coating to limit the advance of chlorides and carbon dioxide, thus bringing them up to the same protective standard as the repair itself. Where appropriate, use the Dekguard

range of protective, anti-carbonation coatings. These products provide a decorative and uniform appearance as well as protecting areas of the structure which might otherwise be at risk from the environment. Dekguard products may be applied over the repair area following the removal of **any** curing membranes prior to the application of Dekguard system to allow penetration of the silane primers.

When applying other decorative coating systems over curing compounds independent adhesion tests of the primer is recommended. Solvent based primers may compromise the curing compound.

Cleaning

Renderoc ST 06 should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Limitations

Renderoc ST 06 is not suitable for trafficable surfaces.

Renderoc ST 06 is not suitable for applications that will be permanently water immersed such as tanks and other water retaining structures.

Renderoc ST 06 should not be applied when the substrate and/or air temperature is below 5°C and falling.

Application at high humidity and/or on a falling thermometer may result in a white surface discolouration. This will not affect product performance and should decrease with time.

Exposure to rainfall prior to the final set may result in water uptake and severe reduction in the performance of the hardened product. Exposure to mist or high humidity prior to sufficient hardening may result in discolouration of the surfaces. These white discolourations will decrease with time.

Supply

Renderoc ST 06 is supplied in 2 components:
10kg Renderoc ST 06 Powder and 2 litres Liquid component.

Renderoc ST 06 Liquid Part A:	FC302031-2L
Renderoc ST 06 Powder Part B:	FC302032-10KG

Coverage and yield

Renderoc ST 06:	Approximately 5.6 litres / 12 kg pack
	5.6m² @ 1mm thick
	2.8m² @2mm thick
	1.8m² @ 3mm thick
	1.4m² @ 4mm thick
	1.2m² @ 5mm thick

Note: the actual yield per bag of Renderoc ST 06 will depend on the consistency used. The yield will be reduced if the material is applied by a spray technique. The coverage figures for liquid products are theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.

Storage

Renderoc ST 06 has a shelf life of 24 months from date of manufacture if kept in a dry store in the original, unopened packaging.

Storage conditions

Store in dry conditions in the original, unopened bags or packs. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced to 4 - 6 months.

Important notice

A Safety Data Sheet (SDS) is available from the Fosroc website. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

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