

Fosroc®

Renderoc ST 05



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constructive solutions

Protective cementitious coating and levelling mortar for applications from feather edge to 5mm

Uses

Renderoc ST 05 is designed for application in thin layers for the filling of blow-holes or imperfections in concrete to produce a smooth surface, and at the same time provide a chloride and carbonation barrier. It can be left as a fair-face finish or overcoated. It can be used as a scrape-coat, brush or trowel applied, placed in thicknesses from 0-5 mm.

Advantages

- Easy to mix and apply
- No primer required
- Vertical and deck applications
- Excellent adhesion
- Formulated blow hole filler
- Carbonation barrier
- Chloride barrier
- High frost resistance
- High compressive strength

Description

Renderoc ST 05 is a powder to which Nitobond ST liquid is added. The mixing ratio depends on the required consistency and actual use.

The powder consists of a blend of cements, graded aggregates and chemical additives, and is delivered as a light grey powder with a maximum grain sizes of 0.5 mm

The liquid component (Nitobond ST), which contains modified acrylic polymers, gives Renderoc ST 05 a creamy, user friendly consistency with extremely good barrier characteristics.

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

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.

Properties

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

Appearance :	Light grey powder
Compressive strength : (TI-B 27)	13 MPa after 1 day 26 MPa after 3 days 37 MPa after 7 days 50 MPa after 28 days
Flexural strength : (TI-B 27)	11 MPa after 28 days
Bond strength : (TI-B 13)	> 2.0 MPa
Density : (DS 423.16)	2050-2200 kg/m ³
E-modulus : (DS 423.25) :	E _o (CEB-FIP) = 15000 MPa E _c (ISO 6784) = 17000 MPa
Frost resistance : (SS 13 72 44, method I A)	Classification : "very good"
Resistivity : (Force standard)	21.3 k ^Ω cm
Chloride content : (DS 423.28, modified)	< 0.01 %
Chloride penetration : (w/c 0.45)	1mm of Renderoc ST 05 is equivalent to 13mm of concrete with a 0.45 w/c ratio
Water vapour diffusion resistance (ASTM E 96-95):	Z = 1 GPa · sec. · m ² /kg
Carbonation barrier : (NT BUILD 357)	<R _(b) > = 21.0 mm for ST 05-layer 2 mm
Coefficient of thermal exp. :	7-12 · 10 ⁻⁶ / °C
Setting time :	Approx. 60 minutes, dependent on thickness of layer, temperature and porosity of the substrate.

Preparation

Concrete

Surfaces must be clean and sound, 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.

On floors, large pockets greater than 4 mm depth should be filled with Fosroc XR90, finished with a scratched surface. Allow one hour to cure before application of Renderoc ST 05.

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Pre-soaking

All prepared areas should be thoroughly soaked with clean water prior to application of Renderoc ST 05, to achieve a saturated surface dry condition. Any residual surface water should be removed prior to application.

Priming

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 05.

Mixing

Renderoc ST 05 and Nitobond ST should be mixed in a forced action mixer of adequate capacity. Mixing in a suitable sized drum using a Conbextra paddle with a slow speed (500 rpm) heavy-duty drill is acceptable.

Place the required amount of Nitobond ST in the mixer and add the full bag of Renderoc ST 05. Mix for 5 minutes until fully homogeneous. Let the mix rest for 5-10 minutes and adjust the consistency with Nitobond ST, if necessary. Mix for another minute until the required consistency is obtained.

Polymer level can be varied to application method.
Mixing ratios:
Brush coating - 5.0 ltrs polymer: 20 kg powder
Fairing coat - 4.0 ltrs polymer: 20 kg powder

Renderoc ST 05 and Nitobond ST can be mixed to the required consistency. The above mixing ratios can be used as guidelines. Part packs can be mixed provided mix ratios are maintained.

Application and coverage (Coverage can vary due to substrate)

Vertical applications	Thickness	Volume of Nitobond ST per bag	Coverage per pack
Brush / roller	1mm	4.5 - 5.0 litres	11.5 m ² - 12 m ² @ 1 mm
Trowel	2mm	4.0 - 4.5 litres	5.5 m ² - 5.75 m ² @ 2mm
Blow hole filler	Skim applied	5.0 litres	Circa 12 m ² depending on depth and spread of blow holes
Horizontal applications			
Trowel / screed	4mm	4.5 - 5.0 litres	2.9 m ² - 3.0 m ² @ 4 mm
Brush / roller	4mm	5.0 litres	3.0 m ² @ 4 mm

Floor repairs

The surface finish of the final coat can be obtained in the following ways:

- I) Smooth surface: Finish with a sponge.
- II) Rough, granulated surface: Finish with a roller.
- III) Skid resistant surface: Sprinkle dry quartz sand in the wet surface or brush finish.

Multiple layers

When applying multiple layers, allow the first application to dry for between 2-4 hours (at 20°C). Lightly scratch and dampen surface between layers. Patches at 300 mm² or less can be applied up to 5mm in one application when cured.

Curing

Curing is required. The use of curing membranes, e.g. Nitobond AR or Concure WB are recommended, see separate data sheets. Covering with polythene sheeting taped down at the edges is an acceptable alternative. Curing should be applied immediately the application has finished.

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

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

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High temperature working

At ambient temperature above +35°C both components should be stored in the shade.

Note: working times will be reduced at elevated temperatures.

Overcoating with protective decorative finishes

Renderoc ST 05 may be overcoated with a protective barrier/decorative coating. Fosroc Ltd recommend the use of the Dekguard range of protective, anti-carbonation coatings. These products provide a decorative and uniform appearance as well as protecting parts of the structure, which have not been repaired and might otherwise be at risk from the environment.

Cleaning

Renderoc ST 05 and Nitobond ST should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Supply

Renderoc ST 05 is supplied in 20kg bags of powder and 5.0 litres of Nitobond ST liquid. This gives a yield of approximately 12 litres or 25kg of mixed product.

Limitations

Renderoc ST 05 should not be applied when the substrate and/or air temperature is below +5°C and falling.

Not suitable for heavily trafficked floors.

Storage

Renderoc ST 05 has a shelf life of 12 months if kept in a dry store in the original, unopened packaging. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Nitobond ST has a shelf life of 12 months if it is stored indoors at +10°C to +30°C in the original, unopened packaging. Nitobond ST should be protected against frost. If the product has been exposed to frost and is grainy, it should not be used.

Precautions

For further information see product safety data sheets.



Important note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard Conditions for the Supply of Goods and Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification of information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation of information given by it.

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