

Single component polymer modified fast setting cementitious fairing coat

Description and uses

Renderoc FCR is a ready-to-use blend of dry powders requiring only the site addition of clean water to produce a highly consistent fast setting cementitious fairing mortar. The material is based on a blend of cements, graded aggregates, special fillers and chemical additives to provide a material with good handling characteristics, while minimising water demand. The product exhibits excellent thermal compatibility with concrete and is designed for vertical and overhead use to infill honeycombing and voids from a feather edge up to 20 mm deep in the surface of concrete which is not trafficked.

Renderoc FCR has thixotropic and rapid setting properties, particularly suitable for fast repair / appearance improvement of precast concrete elements during manufacturing and is fully compatible with other Renderoc mortars and Dekguard coatings.

Advantages

- Polymer-modification provides extremely low permeability to water, carbon dioxide and chlorides
- Superb application performance
- Rapid setting
- Excellent bond to concrete
- One component, pre-bagged to overcome site-batched variations
- Contains no chloride admixtures

Properties

The following test results were obtained at water:powder ratio of 0.27 and at temperature of 20°C.

Test Method	Test result
Compressive strength (EN 12190:1999)	>20 MPa at 28 days
Bond strength by pull off (EN 1542:1999)	>0.8 MPa at 28 days
Chloride ion content (EN 1015-17:2000)	<0.03%
Open time	~15 minutes
Setting time (BS 4551 -14:1980)	Initial set: 40~65 minutes
Fresh wet density	1800~1950 kg/m ²
Build characteristics, hand applied:	
Minimum thickness:	0.3 mm
Maximum thickness:	Up to 20 mm

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



Specification Clause

The fairing coat shall be Renderoc FCR, a one component polymer modified rapid setting mortar for application thicknesses of between 0.3mm and 20mm. It shall be capable of use without independent priming and curing systems and shall be manufactured to produce a uniform, fair faced finish to concrete surfaces either as the surface finish or in preparation for application of a protective coating. The product shall be mixed, applied and cured in accordance with the manufacturer's written instructions to a correctly prepared substrate.

Application instructions

Preparation

Clean the surface and remove any dust, unsound material, plaster, oil, paint, grease, corrosion deposits or algae. Roughen the surface and remove any laitance by light scabbling or abrasive-blasting. Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser.

Renderoc repair mortars require no additional preparation prior to the application of Renderoc FCR.

No independent priming system is required.

The cleaned areas should be blown clean with oil-free compressed air before continuing. All prepared areas should be saturated-surface-dry immediately before the application of Renderoc FCR, i.e. they should be thoroughly saturated with clean water and any residual surface water removed. Under severe drying conditions repeated soaking may be necessary to ensure the substrate is still saturated at the time of application.

Care should be taken and the work scheduled to ensure water does not run onto areas of recently applied Renderoc FCR less than 12 hours old.

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Mixing

Care should be taken to ensure that Renderoc FCR is thoroughly mixed. Small quantities (up to 10 kg) can be mixed by hand using a suitable mixing drum or bucket. Greater quantities should be mixed using a forced-action mixer. Mixing in a suitably sized drum using an approved Renderoc Mixing Paddle (MR4) in a slow speed (400/500 rpm) heavy-duty drill is an acceptable alternative.

Mixing warning

As with other 'one pack' repair mortars, Renderoc FCR may exhibit satisfactory handling characteristics even though inadequately mixed. This will result in a significantly lower level of performance or possible failure. It is therefore essential that mixing Instructions are strictly adhered to with particular emphasis on the quantity of water used and the time of the mixing operation.

If mixing small quantities, use a balance to weigh out the required quantity of Renderoc FC. Water must be measured in a proportion between 0.24 and 0.28 of the weight of the powder. (e.g. for 10kg powder, use between 2.4 and 2.8 litres of water.)

For larger volumes, place 6 to 7 litres of drinking quality water into the mixer and, with the machine in operation, add one full 25 kg bag of Renderoc FCR and mix for a minimum of 3 minutes (maximum 5 minutes). The water content can vary between 6 and 7 litres depending on the thickness being applied, but should not exceed 7 litres per 25 kg bag of Renderoc FCR. Do not subsequently re-temper with extra water.

Note: that in all cases Renderoc FCR powder must be added to water.

Application

Apply the mixed Renderoc FCR to the prepared substrate by steel trowel as a scrape coat of minimal thickness. It should be applied with the minimum of working and be allowed to partly set before finally trowelling to a smooth finish. If a very smooth finish is required, a small amount of water may be flicked on to the surface of the Renderoc FCR with a paint brush prior to final trowelling.

Do not proceed with the application when rainfall is imminent unless in a sheltered or protected situation.

Low temperature working

Normal precautions for winter working with cementitious materials should then be adopted. The material should not

be applied when the substrate and/or air temperature is 5°C and falling. At 5°C static temperature or at 5°C and rising, the application may proceed. A longer set time of Renderoc FCR is expected in winter.

High temperature working

At ambient temperatures above 30°C, the material should be stored in the shade and cool water used for mixing.

Curing

Renderoc FCR does not require any form of curing in moderate ambient conditions, but under strong drying conditions curing may be necessary. In this case Renderoc FCR should be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR, sprayed on to the surface of the finished Renderoc FCR in a continuous film, is recommended. Large areas should be cured as trowelling progresses (0.5 m² at a time) without waiting for completion of the entire area. In very fast drying conditions, supplementary curing with polythene sheeting taped down at the edges should be used.

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

Overcoating with protective decorative finishes

Renderoc FCR can be overcoated with the Dekguard range of coatings or suitable alternatives. These products provide a barrier at the surface of the repair area and the concrete structure to limit the advance of chlorides and carbon dioxide, and to resist the weathering erosion. They also act as a decorative coating to improve the decorative and uniform appearance of the structure. The Dekguard products may be applied over the repair area without prior removal of the Nitobond AR curing membrane (if used). Other curing membranes must be removed prior to the application of Dekguard products.

Cleaning

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

Estimating

Supply

Renderoc FCR:	25 kg bags
Nitobond AR:	5 and 25 litre drums



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Coverage and yield

Renderoc FCR:	Approx. 15.0 litres / 25 kg bag 3 m ² at 5 mm thickness
Nitobond AR:	6 - 8 m ² / litre

Notes: the actual yield per bag of Renderoc FCR will depend on the consistency used.

Limitations

Renderoc FCR should not be used when the temperature is below 5°C or above 35°C. Due to the lightweight nature of Renderoc FCR, the product should not be used in areas subjected to traffic (in these circumstances, Renderoc S should be considered).

Renderoc FCR should not be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour.

If any doubts arise concerning temperature or substrate conditions, consult the local Fosroc office.

Storage

The product has a shelf life of 12 months from the date of manufacture if kept in dry storage in the original, unopened bags. If stored at high temperatures and/or high humidity the shelf life may be reduced to less than 6 months.

Nitobond AR should be protected from frost.

Precautions

Health and safety

For further information refer to the appropriate Safety Data Sheets available at www.fosroc.com.

Fire

Renderoc FCR is non-flammable.

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Important note

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