Renderoc® RSXtra

constructive solutions

Rapid setting repair concrete

Uses

For emergency reinstatement of damaged or deteriorated concrete. The material can be used internally or externally and is particularly suitable for repairs to:

- Airport runways and aprons
- Areas where wheeled traffic requires fast return to service
- Industrial concrete floors

Advantages

- **Cost effective** - Pioneering 'DS Technology' ensures shrinkage control, and enables repairs to be completed 'right first time'.
- **Rapid strength gain** - Accepts vehicular traffic in 4 hrs.
- **Good durability** - High strength, abrasion and weather resistance
- **Economical** - Can be 'bulked-out' with graded aggregate in some locations.
- **Self compacting** - Eliminates honeycombing voids

Description

Renderoc RSXtra is a blend of dry powders and graded aggregates which requires only the site addition of clean water to produce a highly consistent, high strength, free flowing repair concrete which self-compacts, Renderoc RSXtra exhibits excellent compatibility with concrete and good water repellent properties.

Technical support

Fosroc offers a comprehensive range of high performance, high quality concrete repair and construction products. In addition, Fosroc offers a technical support service to specifiers, end-users and contractors, as well as on-site technical assistance in locations all over the Country.

Design criteria

Renderoc RSXtra is designed for horizontal use but can also be used vertically with the aid of formwork. Horizontal surface areas should be restricted to bay sizes not exceeding 4m^2. Renderoc RSXtra should be applied at thicknesses in the range 20-100mm. Thicker sections may be completed by the addition of suitable aggregates - consult the local Fosroc office for more information.

Properties

The physical properties given are typical of those obtained in practice:

Test Method	Typical result
w/p ratio	0.15
Compressive strength 100mm Cubes dry cured @ 25^{0}C (BS 1881: Part116-1983)	15N/mm^2 @ 3 hours 25N/mm^2 @ 1 day 40N/mm^2 @ 7 days 45 N/mm^2 @ 28 days
Working life	20 min @ 20^{0}C 15 min @ 35^{0}C
Setting time (BS4550:part3 1978) w/p ratio 0.15 @ 25^{0}C	
Initial set	60 min
Final set	90 min
Traffic time @ 25^{0}C	
Pedestrian	2 hours
Vehicular	4 hours
Coefficient of thermal expansion	11 10^{-6}/^{0}C
Fresh wet density	approx. 2170 kg/m^3
Drying shrinkage to ASTM C157	
28 days	<500 microns

Instructions for use

Saw or cut back the extremities of the repair locations to a depth of at least 20mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 20mm upto the sawn edge.

Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae. Where breaking out is not required, roughen the surface and remove any laitance by light scrabbling or grit blasting.

Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the sue of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull-off test.

The prepared area should be blown clean with oil-free compressed air.

Temporary formwork should be fitted tightly into all existing pavement and floor joints which abut the repair zone in order to prevent grout loss during the repair process.

Priming

Prior to placing, the prepared concrete substrate should be saturated by flooding with clean water. Immediately Prior to the application of Renderoc RSXtra, free standingwater should be removed leaving the substrate 'saturated surface dry'.

Provided the substrate has been properly soaked, further priming is not normally necessary.

Mixing

Care should be taken to ensure that Renderoc RSXtra is thoroughly mixed. A forced action mixer is essentially (free fall mixers are not suitable). Hand mixing of single bags should be carried out in a suitably-sized mixing vessel, using a slow speed drill (400/500 rpm) + Fosroc mixing paddle attachment. Under no circumstances should part mixing be considered.

It is essential that machine mixing capacity, material quantities and labour availability is adequate to enable the placing operation to be carried out continuously. Measure 2.25 litres of drinking quality cool water and pour three quarters into the mixer. With the machine in operation, add one full kg. bag of Renderoc RSXtra and mix for one minute before adding the rest of the water. Mix for a further 3-4 minutes until a smooth even consistency is obtained. Note that powder must always be added to water. The quantities mixed may be scaled up as required.

When the drill and paddle mixing method is used, the complete measured volume of water should be placed in the mixing drum. With the paddle rotating, add one full 15 kg. bag of Renderoc RSXtra and mix for 3-5 minutes until a smooth even consistency is obtained.

Placing

The mixed material should be placed within 10 minutes of mixing in order to gain the full benefit of fluidity. Each repair should be poured and pumped in a single continuous operation. Repairs may be surface finished using a trowel or wood float. If a textured surface is required, this can be achieved using a suitable roller or brush as the material begins to stiffen. The completed surface should not be overworked. Renderoc RSXtra can be applied up to 100mm thickness in a single application

For repair sections deeper than 100 mm, it will be necessary to 'fill-out' Renderoc RSXtra with suitable and properly graded aggregate in order to minimise temperature rise.

Care should be taken to ensure that, repaired area is not affected by vibrations caused by the adjacent zones, till 3 hours from the time of placing the material to avoid cracking.

Contact the local Fosroc for further details.

High temperature working

It is suggested that, the temperatures above 30^{0}C, the following guidelines are adopted as good working practice:

Store unmixed material in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.

Keep equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of equipment which will come into direct contact with the material itself.

Try to eliminate application during the hottest times of the day.

Makes sufficient material, plant and labour available to ensure that application is a continuous process.

Water (below 20^{0}C) should be used for mixing the repair concrete prior to placement.

Curing

Renderoc RSXtra is a cement-based product. In common with all cementitious materials, Renderoc RSXtra must be cured immediately after finishing in accordance with good concrete practice. Nitobond AR shall be used for effective curing of the repair area. In fast drying conditions, supplementary curing with polythene sheeting taped down at the edges must be used. In cold conditions, the finished repair must be protected from freezing.

Concure LP90 can also be used for effective curing.

Cleaning

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

Equipment used with Nitobond AR should be cleaned with water immediately after use.

Limitations

Renderoc RSXtra should not be used when the temperature is below 5^{0}C and falling.

Do not mix part bags

The product 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.

Specification clause

Where shown in the contract documents, the fast setting repair concrete shall be Renderoc RSXtra by Fosroc, a single component, cement-based blend of powders and graded aggregates, to which only the site-addition of water shall be permitted. The cured repair concrete shall achieve compressive strengths of 15N/mm^2 after 3 hours and 25N/mm^2 after 1 day (@ 25^{0}C). The material shall thus be capable of supporting pedestrian and vehicular traffic after 4 hours, at an ambient temperature of 25^{0}C.

Estimating

Supply

Renderoc RSXtra	15 kg. bags
Nitobond AR	1, 5 & 20 L containers

Coverage & Yield

Renderoc RSXtra	Approx. 7.5 L / 15 kg. bag
Nitobond AR	6.0 - 8.0 m^2/litre

Storage

Shelf life

Renderoc RSXtra and Nitobond AR have a shelf life of 6 months if kept in a dry store in the original, unopened bags or packs.

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.

Precautions

Renderoc RSXtra contains cement powders which, when mixed or become damp, release alkalis which can be harmful to the skin. During use, avoid inhalation of dust and contact with skin and eyes. Wear suitable protective equipment. The use of barrier creams provide additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately - Do not induce vomiting.

Nitobond AR should not come in contact with skin and eyes or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection.

Fire

Renderoc RSXtra, Nitobond AR clear are non-flammable.

Disposal

Spillages of component products should be absorbed onto earth, sand or other inert material and transferred to a suitable vessel. Disposal of such spillages or empty packaging should be in accordance with local waste disposal authority regulations.

For further information, refer to the Product Material safety datasheet.

Additional Information

Fosroc manufactures a wide range of complementary products which include :

- waterproofing membranes & waterstops
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following :

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.

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