

Fosroc Renderoc S

Shrinkage compensated, polymer modified thixotropic structural grade repair mortar system

Uses

Renderoc S is suitable for sprayed or trowelled applications, with high build characteristics. Typical applications would include, but not be limited to, the following:

- All types of structural repair which can be applied by trowel or wet spray
- Repair of structural members subjected to repetitive loading including application in trafficked areas
- Repairs to reinforced or pre-stressed beams or columns
- Repairs in industrial area, especially those containing mineral oils, lubricants etc.
- Repairs in marine environments

Advantages

- Wet or dry spray application- rapid application of large quantities
- Low rebound - when dry spray applied rebound is minimal with subsequent saving in material cost
- Extremely low permeability-gives excellent resistance to attack by aggressive elements.

Description

Renderoc S is supplied as a ready to use blend of dry powders, which requires only the addition of clean water to produce a highly consistent, repair mortar suitable for structural concrete and masonry repairs.

Renderoc S is formulated from Portland cement, graded filler, shrinkage compensating agents and special additives. It contains no metallic aggregate and is chloride free.

Design Criteria

Renderoc S is design for Horizontal or Vertical use. It can be applied in thicknesses up to 10mm vertically, up to 100mm thicknesses can be applied in small pockets or using formwork or spray application.

In horizontal locations Renderoc S can be applied up to 100mm in one application. Thicker sections can be achieved in build-up layers.

Renderoc S should not be applied in thicknesses less than 5mm.

Typical properties

The following typical results were obtained at a water to powder ratio of 0.11.

Test method	Typical result
Compressive strength (BS1881 : Pt 116)	: > 20 N/mm ² at 1 day > 40 N/mm ² at 3 days > 50 N/mm ² at 7 days > 60 N/mm ² at 28 days
Flexural Strength (BS 6319 pt 3)	: > 10 N/mm ²
Tensile Strength (BS 6319 pt 7)	: > 4 N/mm ²

Instructions for use

Preparation

It is essential that the substrate to be repaired is sound, clean and free of all contamination.

The damaged areas of concrete to be removed must be clearly identified. Saw-cut or cut back the extremities of the repair locations to a depth of at least 10mm. Feather-edging is not permitted and a minimum thickness of 10mm must be maintained over the whole area.

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 scabbling or grit-blasting.

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

If unsound or oil contaminated concrete is found to extend beyond the pre-marked area, consult the engineer in charge. Subject to approval cut back to clean sound concrete.

If reinforcement is corroded ensure that the back of the steel has been exposed. Reinforcement should have all rust removed by the use of power tools, abrasive blasting (wet or dry) or wire brushing. Reinforcing steel should be exposed and cleaned around its whole circumference. Steel should be prepared to Swedish Standard SIS 05-900:1967-SA2½ or BS4232 Ref. 24 second quality.

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Corrosion Protection of steel Reinforcement

Apply one full coat of Nitoprime Zinc Rich and allow to dry before continuing. If any doubt exists about having achieved an unbroken coating, a second application should be made and, again, allowed to dry before continuing.

Severely corroded reinforcement may require replacement, and the engineer must be consulted.

Substrate Priming

The substrate should be thoroughly soaked with clean water and any excess removed prior to applying one coat of Nitobond AR primer and scrubbing it well into the surface. Renderoc S can be applied as soon as the primer becomes tacky. If the Nitobond AR is too wet, vertical build-up of the Renderoc S mortar may be difficult.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the substrate is wet or likely to remain permanently damp, Nitobond EP bonding aid should be used. Contact the local Fosroc office for further information.

Mixing

Care should be taken to ensure that Renderoc S is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved Renderoc Spiral Paddle in a slow speed (400/500 rpm) heavy duty drill is acceptable for the occasional one bag mix. Free fall mixers must not be used. Mixing of part bags should never be attempted.

Add 2.5 - 3.0 litres of water per 25kg bag. Pour the desired quantity of water into a suitably sized mixing vessel for full bag mixing then add full bag of Renderoc S and mix for 3 - 5 minutes, until the mix becomes fully homogeneous. Do not mix part bags.

Application

After mixing, Renderoc S can be sprayed or trowel applied. Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will affect mortar compaction, build and bond.

When applying by hand or trowel, Renderoc S must be forced tightly onto the prepared substrate to ensure intimate contact. Leveling and initial finishing should be carried using a wooden or plastic float. Final finishing should be carried out using a steel float. When the material has stiffened to the point where finger pressure lightly marks the surface, a final firm trowelling should be given using a steel float.

If formwork is used, it should have properly sealed faces to ensure that no water is absorbed from the repair material.

For spray application, Renderoc S can be applied by wet or dry spray techniques. In circumstances where large areas of repair are required, the rapid placement and higher build attainable by these methods offer economic advantages over hand-trowelling. The resultant repair also offers a generally denser compound with greatly enhanced mortar/substrate bond characteristics. Suitable spraying units are Putzmeister P11, Turbosol T20 or Meyco Deguna 20.

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 S is a cement-based repair mortar. In common with all cementitious materials, Renderoc S must 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 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 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.

Over-coating with protective finishes

Renderoc S is extremely durable and will provide an excellent protection to the embedded steel reinforcement within the repaired locations. The surrounding parts of the structures will generally benefit from the application of a 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. Fosroc recommend the use of 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 without prior removal of the Nitobond AR curing membrane. Other curing membranes must be removed prior to the application of Dekguard products.

Refer for product method statement for further information on application procedure.

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Cleaning

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

Equipment used with Nitoprime Zinc Rich and Nitobond EP should be cleaned with Fosroc Solvent 102.

Estimating

Supply

Renderoc S	: 25 KG Bags
Nitoprime Zincrich	: 1L Cans
Nitobond AR	: 5 & 20L Pails; 190 & 210 L Drums
Nitobond EP	: 5KG per set
Solvent 102	: 5, 18 and 20L Pails

Coverage & Yield

Renderoc S	: 12L per 25 KG bag
Nitoprime Zincrich	: 7.4 m ² per Litre
Nitobond AR	: 6 – 8 m ² /L as primer 4 – 5 m ² /L at curing agent
Nitobond EP	: 12 m ² per set

Limitations

- Renderoc S should not be used when the ambient temperature is below 5°C and falling.
- Renderoc S should not be exposed to running water either during application or prior to final set.



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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Storage

Shelf life

Renderoc S has a shelf life of 12 months; if kept in a dry environment, in its original, unopened packing. If stored in conditions of high humidity and/or temperature, the shelf life will be reduced

Precautions

Health and safety

Renderoc S contains cement powders which, when mixed with water or upon becoming damp, release alkalis which can be harmful to the skin. 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.

Fire

Renderoc S, Nitobond AR and Nitobond EP are non-flammable. Nitoprime Zinc Rich and Fosroc Solvent 102 are flammable. Keep away from sources of ignition. **No smoking.** In the event of fire, extinguish with CO² or foam. **Do not** use a water jet.

Flash points Nitoprime Zinc Rich : 16°C

FosrocSolvent 102 : 33°C

For further information, please refer to the Product Material Safety Data Sheet.

† See separate data sheet