Fosroc®
Renderoc® HB25

constructive solutions

High performance, light-weight, very low shrinkage, patch repair mortar

Uses

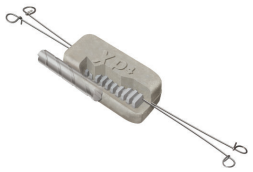
For the reinstatement of large areas of concrete where low permeability characteristics, lowest drying shrinkage characteristics is required. Renderoc HB25 has been specifically engineered for vertical and overhead repair work where its lightweight nature makes it ideal. The mortar can also be used for small, localised patch repairs.

Where higher compressive strengths are required as well as low permeability characteristics, Renderoc HB40, Renderoc HB70 or Renderoc LA55 should be used.

Important Note 1: When Renderoc HB25 is used in conjunction with Impressed Current Cathodic Protection, the substrate bonding primer should be an OPC: Water slurry mixed at a 2:1 ratio.

Polymer bonding agents should not be used. No steel primer should be applied. Please refer to Fosroc for further advice.

Important note 2: Renderoc HB25 is suitable for use with Galvashield XP incipient anode protection systems.



Advantages

- Maximum compatibility with concrete with a compressive strength in the range 15 - 30 MPa
- Polymer-modification provides extremely low permeability to water, carbon dioxide and chlorides
- Exceptional system of shrinkage compensation provides long-term dimensional stability
- Lightweight formulation enables extra high-build - fewer cold joints
- Frequently obviates the need for formwork
- Can be applied quickly and efficiently by wet spraying
- One component, pre-bagged to overcome site-batched variations
- Contains no chloride admixtures
- Suitable for internal and external applications
- RCS (Respirable Crystalline Silica) Hazard Free*

Description

Renderoc HB25 is supplied as a ready to use blend of dry powders, requiring only the site addition of clean water to produce a highly consistent, lightweight repair mortar. It is based on Portland cements, graded aggregates, lightweight fillers and chemical additives which provide a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability.

*Renderoc HB25 is classified not hazardous for RCS in accordance with Australian Inventory of Industrial Chemicals; contains <0.1% RCS.

Design Criteria

Renderoc HB25 exhibits a series of performance characteristics designed to achieve maximum compatibility with concrete with a compressive strength greater than 15 MPa.

Renderoc HB25 has been specifically engineered for vertical and overhead repair work. It can be applied in sections up to 80 mm thickness in vertical locations and up to 60 mm thickness in overhead locations in a single application and without the use of formwork. Thicker sections can be achieved by the use of formwork or can be built up in layers. Deep pockets can sometimes be filled in a single application dependent on the configuration of the pocket and the volume of exposed reinforcing steel.

Build can be dramatically increased by wet spraying. Typical achievable thicknesses are 175 - 250mm vertically and 150 - 200mm overhead, although this will depend on substrate profiles and the distribution of steel reinforcement.

The material should not be applied at less than 10mm thickness.

Where higher compressive strengths are required, Renderoc HB40, Renderoc HB70 or Renderoc LA55 should be used.

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Properties

Test method	Standard	Test result	
Compressive Strength	AS 1478.2 – 2005	5 MPa @ 1 day 19 MPa @ 7 days 23 MPa @ 28 days	
Modulus of elasticity in compression	AS1012.17: 1997	1.10 x 1^{04} MPa	
Chloride Diffusion	Nordtest NT Build 443	2.29 x 10^{-12} m²/sec	
Flexural Strength	AS1012.11 – 2000	4.2 MPa @ 28 days	
Tensile Strength	AS1012.10 - 2000	1.8 MPa @ 28 days	
Setting Time	AS1012.18 - 1996	Initial Set : 3 hours Final Set : 5.5 hours	
Fresh Wet Density		1400 kg/m³	
Drying Shrinkage (25 x 25 x 285 prisms @ 27°C, 55 RH)	AS 1478.2 - 2005	< 400 microstrains @ 7 days 500 microstrains @ 28 days	
Alkali reactive particles	RTA Rapid Mortar Bar Test RTA T363	<0.1% (Non-Reactive)	
Build Characteristics achievable in a single layer **Overhead** **Vertical**		Hand/Trowel up to 60mm up to 80mm	Wet Spray 150-200mm 175-250mm

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

Application Instructions

Preparation

Saw cut or cut back the extremities of the repair locations to a depth of at least 10mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 10mm up to 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 scabbling or abrasive-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.

Expose fully any corroded steel in the repair area and remove all loose scale and corrosion deposits paying particular attention to the back of exposed steel bars. Abrasive-blasting or high pressure water blasting is recommended for this process.

Where corrosion has occurred due to the presence of chlorides, the steel should be high-pressure washed with clean water immediately after abrasive-blasting to remove corrosion products from pits and imperfections within its surface.

Reinforcing steel priming

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

Note: If Renderoc HB25 is to be used in conjunction with Galvashield XP's, refer to the current Galvashield XP Technical Data Sheet for reinforcement steel priming information.

Substrate priming

The substrate should be thoroughly soaked with clean water and any excess removed prior to applying one coat of Nitobond HAR primer and scrubbing it well into the surface. Renderoc HB25 can be applied as soon as the primer becomes tacky. If the Nitobond HAR is too wet, overhead and vertical build up of the Renderoc HB25 mortar may be difficult. Scrubbing by hand a thin layer of the Renderoc into the tacky primer will assist adhesion and also minimise the chance of the primer drying out. If the Nitobond HAR primer dries before the application of the Renderoc, the area must be re-primed before proceeding.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the repair/substrate is likely to become immersed, permanently wet or damp subsequent to the completion and cure of the repair, Nitobond EP bonding aid should be used. Refer to the Nitobond EP data sheet

Note: Nitobond HAR primer is generally not required when wet spraying Renderoc HB25. Refer to the separate information document "Wet Spraying Renderoc mortars" available from Fosroc.

Mixing

Care should be taken to ensure that Renderoc HB25 is thoroughly mixed. A forced-action mixer is essential. Mixing 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 or equivalent is acceptable for one-bag mixes.

Free-fall mixers must not be used.

Place 3.45 - 3.70 litres of drinking quality water into the mixer and, with the machine in operation, add one full 20kg bag of Renderoc HB25 and mix for 3 - 5 minutes until fully homogeneous. Initially add 3.45 litres of water, mix the product for a minimum 3 minutes to allow the polymers in the mix to activate; then make any necessary water adjustments after this time up to the maximum 3.70 litres.

Note that the powder must always be added to the water.

Mixing part bags

It is recommended that full bags be mixed, however for applications where smaller quantities of product are required, experienced applicators may elect to mix half bags by weighing out 10kg of product and mixing with half the recommended quantity of water. In doing so the contractor accepts the risk of any off-ratio mixing. Agitate the dry product before weighing out to minimise any segregation. Reliable scales should be used to weigh out individual components.

Application

Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will affect mortar compaction, build and bond.

Apply the mixed Renderoc HB25 to the prepared substrate by gloved hand or trowel. Thoroughly compact the mortar on to the primed substrate and around the exposed reinforcement. Renderoc HB25 can be applied in sections up to 80 mm thickness in vertical locations and up to 60 mm thickness in overhead locations in a single application and without the use of formwork. Thicker sections should be built-up in layers but are sometimes possible in a single application dependent on the actual configuration of the repair area and the volume of exposed reinforcing steel. Thicker applications can always be achieved by spray application.

If sagging occurs during application, the Renderoc HB25 should be completely removed and reapplied at a reduced thickness on to the correctly reprimed substrate.

Note: the minimum applied thickness of Renderoc HB25 is 10mm.

Build-up

Additional build-up can be achieved by application of multiple layers. The final thickness is dependent on the material consistency and substrate profile.

The surface of the intermediate layers should be scratch-keyed and cured with Nitobond AR*. Repriming with Nitobond HAR and a further application of Renderoc HB25 may proceed as soon as this layer has set.

Wet spray application

Renderoc HB25 can be quickly and efficiently applied by the wet spray technique. In circumstances where large areas of repair are required, the rapid placement and higher build attainable by this method offer economic advantages over hand-trowelling. The resultant repair also offers a generally more dense compound with enhanced mortar/substrate bond characteristics. For further details on the wet spray technique, including selection of spraying machines and nozzles, consult the document “Wet Spraying Renderoc mortars” or contact Fosroc.

Finishing

Renderoc HB25 is finished by striking off with a straight edge and closing with a steel trowel. Wooden or plastic floats, or damp sponges may be used to achieve desired surface texture. The completed surface should not be overworked. Allow the applied Renderoc to stiffen before attempting to finish off - this will minimise slumping. After spray application, the mortar may need to be ‘cut back’ to the required profile using a steel trowel and then finished with damp sponges as described above.

Low temperature working

In cold conditions down to 5°C, the use of warm water (up to 30°C) is advisable to accelerate strength development. 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.

High temperature working

At ambient temperatures above 35°C, the material should be stored in the shade and cool water used for mixing.

Curing

Renderoc HB25 is a cement-based repair mortar. In common with all cementitious materials, it must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR or Concure A99, sprayed on to the surface of the finished mortar in a continuous film, is recommended. Large areas should be cured as trowelling progresses (0.5m^2 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.

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Overcoating with protective decorative finishes

Renderoc HB25 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, Fosroc recommends 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 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

Nitobond HAR, Concure A99, Nitobond AR and Renderoc HB25 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 Zincrich and Nitobond EP should be cleaned with Solvent 10.

Limitations

Renderoc HB25 should not be used when the temperature is below 5°C and falling. If any doubts arise concerning temperature or substrate conditions, contact Fosroc.

NOTE: Renderoc HB25 is not designed to be used as a broad-scale building render.

Storage

Renderoc HB25 has a shelf life of 36 months from date of manufacture if kept in the original, unopened bags. Do not use if there are lumps in the product, or a loss of workability (requiring more water to be added) is experienced.

If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Nitobond HAR and Nitobond AR should be protected from frost.

Supply

Renderoc HB25 20kg:	FC387080-20KG
Nitoprime Zincrich 1 litre:	FC322100-1L
Concure A99 20 litre:	FC600909-20L
Nitobond AR 5 litre:	FC320015-5L
Nitobond AR 20 litre:	FC320015-20L
Nitobond HAR 1 litre:	FC322070-1L
Nitobond HAR 5 litre:	FC322070-5L
Nitobond HAR 20 litre:	FC322070-20L
Nitobond EP base 1.5 litre pack:	FC321025-1L
Nitobond EP hdnr 1.5 litre pack:	FC321026-500ML
Nitobond EP base 6 litre pack:	FC321025-4L
Nitobond EP hdnr 6 litre pack:	FC321026-2L
Fosroc Solvent 10 4 litre:	FC600800-4L
Fosroc Solvent 10 20 litre:	FC600800-20L

Coverage and yield

Renderoc HB25 20kg:	16.1 - 16.6 litres / 20 kg bag (approx. 1.6m^2 at 10mm thick)
Nitoprime Zincrich:	8 m²/litre
Concure A99:	5 m²/litre
Nitobond AR:	6 - 8 m²/litre
Nitobond HAR:	3 - 4 m²/litre
Nitobond EP:	4 - 5 m²/litre

Notes: the actual yield per bag of Renderoc HB25 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.

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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