

High performance fibre reinforced Medium-weight concrete reinstatement mortar.

## Uses

For the reinstatement of concrete where low permeability characteristics are required.

Renderoc HB40 has been specifically developed for vertical repair work where its medium weight nature and high build characteristics makes it ideal.

## Advantages

- Medium weight formulation enables high-build
- Frequently obviates the need for formwork
- Polymer-modification provides low permeability to water, carbon dioxide and chlorides
- Exceptional system of shrinkage compensation provides long-term dimensional stability
- One component, pre-bagged to overcome site-batched variations
- Contains no chloride admixtures

## Description

Renderoc HB40 is supplied as a ready to use blend of dry powders requiring only the site addition of clean water to produce a highly consistent, medium weight 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 HB40 has been specifically engineered for vertical repair work. It can be applied in sections up to 40 mm thickness in vertical locations (Thickness in overhead locations can be test on site to determine the max thickness can be done without formwork) 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.

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

## Typical Specification:

Based on Laboratory Test at 23+/- 3°C, W/P = 0.16

Compressive strength 28 days	35 - 40 MPa
Chloride ion content	Nil (not intentionally added)

## Application instructions

### Preparation

Saw cut the edges of the repair to a depth of at least 10 mm to provide a square edge. Break out the complete repair area to a minimum depth of 10 mm 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. Steel should be cleaned to a bright condition paying particular attention to the back of exposed steel bars. Abrasive-blasting is recommended for this process.

### Reinforcing steel priming

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.

Apply one full coat of Nitoprime Zincrich Plus 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.

### Concrete Priming

The concrete substrate should be saturated surface dry immediately before the application of the primer i.e. it should be thoroughly saturated with clean water and any residual surface water removed prior to applying one coat

# Renderoc HB40

of NITOBOND SBR/Cement/Clean Water 1:3:1 by volume.

Under severe drying conditions repeated soaking may be necessary to ensure the substrate is still saturated at the time of application of the primer.

Renderoc HB40 can be applied immediately to the primed surface when the primer become tacky.

If the primer dries apply another coat of primer before continuing.

In exceptional circumstances, e.g. where a substrate/repair barrier is required or where the substrate is water immersed 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 HB40 is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved Spiral Paddle with 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.

**For normal applications, place 3.8 to 4.2 litres of drinking quality water into the mixer.**

With the machine in operation, add one full bag of Renderoc HB30 and mix for a minimum of 3 minutes and a maximum of 5 minutes, until fully homogeneous.

The consistency may be adjusted by the addition of small amounts of water up to the maximum total water content of 4.2 litres.

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

As with other 'one pack' repair mortars, Renderoc HB40 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.

## Application

Exposed steel reinforcing bars should be firmly secured to prevent movement during application. Apply the mixed Renderoc HB40 by gloved hand or trowel, thoroughly compacting onto the primed substrate and around exposed reinforcement.

If sagging or slumping occurs the Renderoc HB40 should be completely removed and reapplied at a reduced thickness to a correctly primed substrate.

## Build-up

Additional build-up can be achieved by application of multiple layers.

The surface of the intermediate layers should be comb scratch-keyed and cured with Nitobond AR. A further application of Renderoc HB40 may proceed as soon as this layer has set.

## Finishing

Renderoc HB40 is finished by striking off with a straight edge and closing with a steel float. Wooden or plastic floats, or damp sponges, may be used to achieve the desired surface texture. The completed surface should not be overworked.

## Low temperature working

In cold conditions down to 5°C, the use of warm mixing 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 HB40 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, sprayed on to the surface of the finished mortar in a continuous film, is recommended. A low pressure atomising sprayer is essential for applying the Nitobond AR. Any excessive run-off on verticals or drips on soffits should be removed by brush before they harden.

Large areas should be cured as trowelling progresses (0.5 m<sup>2</sup> 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.

## Overcoating with protective decorative finishes

Renderoc HB40 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 benefit from the application of a barrier/decorative coating to limit the advance of chlorides and carbon dioxide, bringing them 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.

## Cleaning

Renderoc HB40 and Primer should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Clean tools used with Nitoprime Zincrich and Nitobond EP before material cures, using Fosroc Solvent 102.

## Estimating

### Supply

Renderoc HB40:	25 kg bags
Nitoprime Zincrich :	1 litre can
Nitobond SBR	20 L pail & 210 L drums
Nitobond AR:	20 L pail
Fosroc Solvent 102:	5 L tin and 20 L pail
Coverage and yield	
Renderoc HB40:	Approximately 15.0 litres / 25 kg bag
Nitoprime Zincrich :	7 m <sup>2</sup> /litre
Nitobond AR:	6 - 8 m <sup>2</sup> / litre
Nitobond SBR in slurry cement:	2 -3 m <sup>2</sup> /litre

Notes: the actual yield per bag of Renderoc HB40 will depend on the consistency used. The yield will be reduced if the material is applied by a spray technique.

## Limitations

Renderoc HB40 should not be used when the temperature is below 5°C and falling. Do not mix part bags. Due to the medium-weight nature of Renderoc HB40, the product should not be used in areas subjected to traffic (in these circumstances, Renderoc S should be considered).

Renderoc HB40 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

Renderoc HB40 have a shelf life of 12 months from the date of manufacture if kept in dry storage in the original, unopened bags, T = 25 – 35°C, RH<55%. Avoid direct sunlight.

If stored at high temperatures and/or high humidity the shelf life may be reduced to less than 6 months.

Nitobond AR, Nitobond SBR should be protected from frost.

## Precautions

Health and safety

For further information refer to the appropriate Safety Data Sheets.

## Fire

Renderoc HB40 is non-flammable.

Nitoprime Zincrich and Fosroc Solvent 102 are flammable.

Keep away from sources of ignition. No Smoking. In the event of fire, extinguish with CO<sub>2</sub> or foam. Do not use a water jet

## Flash points

Nitoprime Zincrich	16°C
Fosroc Solvent 102	33°C

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