



Renderoc HF Premix

Single Component Free-Flowing Micro-Concrete

Uses

The highly fluid nature of **Renderoc HF Premix** obviates the need for compaction and vibration even where access to the repair zone is restricted or where reinforcement is congested. The product is ideal for the reinstatement of large, structural sections of concrete as well as for many smaller locations where difficulties of access make hand or trowel-applied mortars impractical. It is suitable for use where excellent chloride and carbon dioxide resistance is required. **Renderoc HF Premix** is alkaline in nature and will protect embedded steel reinforcement.

Advantages

- Dual expansion system compensates for shrinkage in the plastic and hardened states.
- Suitable for placement by pumping or pouring techniques into restricted locations.
- Self-compacting nature eliminates honeycombing and displaces air without vibration.
- High strength and low permeability provide maximum protection against carbon dioxide and chlorides.
- Pre-bagged to overcome site-batched variations-only the site addition of clean water is required.
- Contains no chloride admixtures.
- Contain fiber

Description

Renderoc HF Premix is supplied as a ready to use blend of dry powders which requires only the site addition of clean water to produce a free-flowing, shrinkage compensated micro-concrete suitable for large volume concrete repairs at nominal thickness in excess of 50 mm.

The material is based on Portland cement, graded aggregates and additives which impart controlled expansion in both the plastic and hardened states while minimizing water demand.

Design Criteria

Renderoc HF Premix is designed for large volume repairs typically in excess of 50 mm deep. The product can be applied in sections generally up to 500 mm

Properties

The following results were obtained at a water-powder ratio of 0.13 and temperature of $23^{\circ}\pm 3^{\circ}\text{C}$.

Test Method

Typical Result

Compressive Strength

(BS 1881 Pt 116)

: 30 N/mm² @ 1 day

With tolerance $\pm 10\%$

: 50 N/mm² @ 7 days

: 60 N/mm² @ 28 days

Recommended Water dosage:

Water/Powder Ratio: 0.13 – 0.14

Control usage of water in order the flow from slump cone test achieve 70 – 80 cm (at ambient Temperature 25 – 35 °C).

Reduce some quantity of water if the flow too high, to avoid segregation.

Always add 2/3 from total quantity of water during first mixing site test, to control amount of water. If need more, add the rest of water.

Specification Clauses

Steel reinforcement primer

The steel reinforcement primer shall be **Nitoprime Zincrich**, a single component zinc-rich epoxy resin. The primer shall be an 'active' type, capable of avoiding the generation of incipient anodes in the immediately adjacent locations. It shall be fully compatible with the Renderoc system of concrete repair.

Fluid micro – concrete repair system

The fluid repair system (micro-concrete) shall be **Renderoc HF Premix** a single component, cement-based blend of powders to which only the site-addition of clean water shall be permitted.

Application Instruction

Preparation

The unrestrained surface area of the repair must be kept to a minimum. The formwork should be rigid and tight to prevent loss of material and have properly sealed faces to ensure that no water is absorbed from the repair material. The formwork should include drainage outlets for presoaking and, if beneath a soffit, provision for air venting. Provision must also be made for suitable access points to pour or pump the mixed micro-concrete into place. Saw cut or cut back the extremities of

the repair locations to a depth of at least 10 mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 50 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 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-of-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. Grit-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 grit-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 again, allowed to dry before continuing.

Substrate priming

Several hours prior to placing, the prepared concrete substrates should be saturated by filling the prepared formwork with clean water. Immediately prior to the application of **Renderoc HF Premix**, any excess water should be removed.

Mixing

Care should be taken to ensure that **Renderoc HF Premix** is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved spiral paddle in a slow speed (400/500rpm) heavy-duty drill is acceptable. Free fall mixers must not be used. Mixing of part bags should never be attempted.

It is essential that machine mixing capacity and labour availability is adequate to enable the placing operation to be carried out continuously.

Measure 4 liters of drinking quality water and pour three-quarters (2/3 water quantity) into the mixer. With the machine in operation, add one full 30 kg bag of **Renderoc HF Premix** and mix for one minute before adding the rest of the water. Mix for a further 2 to 3 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.

It is recommended that the mixed product be passed through a suitable coarse metal screen prior to placing or pumping to highlight any unmixed material.

Placing

The mixed material should be placed within 30 minutes of mixing in order to gain the full benefit of fluidity and of the expansion process. If placing by pump, standard concrete pumping practice should be followed. The pump and pipeline must be 'grouted' with a rich cement slurry or mortar, discharging the 'grout' as waste. Pumping should be commenced immediately after 'grouting' in this way.

High temperature working

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

Curing

The formwork should be left in place until the compressive strength of the **Renderoc HF Premix** is 10N/mm² or as otherwise specified by the Supervising Officer. **Renderoc HF Premix** is a cement-based concrete reinstatement material.

In common with all cementitious materials, **Renderoc HF Premix** must be cured immediately after the formwork is stripped in accordance with good concrete practice. Immediately after striking the formwork, all exposed faces of the repair should be thoroughly soaked with clean water and then sprayed with a liquid curing membrane such as **Concure P** or **Concure 75 Clear**. In fast drying conditions, supplementary curing with polythene sheeting taped down at the edges must be used.

Overcoating with protective decorative finishes

Renderoc HF Premix is extremely durable and will provide excellent protection to the embedded steel reinforcement within the repaired locations.

The surrounding parts of the structure 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. All traces of form-release oils and curing membranes must be removed prior to the application of **Dekguard** products. This is best achieved by light grit or sand-blasting.

Cleaning

Renderoc HF Premix and **Concure P** should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Limitations

Renderoc HF Premix should not be used when the temperature is below 5°C and falling.

Do not mix part bags. The product should not be used to reinstate horizontal areas where the surface would remain unrestrained during cure. It should not be exposed to moving water during application. If any doubts arise concerning

temperature, application or substrate conditions, consult the local Fosroc office.

Estimating

Supply

Renderoc HF Premix	30 kg bag
Nitoprime Zincrich	1 litre tins
Concure P	20 and 210 litre
Concure 75 Clear	20 and 210 litre

Coverage

Renderoc HF Premix	Approximately 14.5 litres / 30 kg bag
Nitoprime Zincrich	7 m ² / litre
Concure P	5 m ² / litre
Concure 75 Clear	4 to 5 m ² / litre

Notes :

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.

Storage

Shelf life

All products have a shelf life of 12 months if kept in a dry store in the original, unopened bags or packs. Avoid direct sunlight.

Storage Conditions

Store in dry conditions (T: 25- 35 ° C, RH < 55%), in the original unopened bags or packs, if stored at high temperatures and / or high humidity conditions the shelf life may be reduced.

Precautions

Health and Safety

Renderoc HF Premix contains cement powders which, when mixed or become damp, release alkalis which can be harmful

to the skin. During use, avoid inhalation of the dust and contact with the skin or eyes. Wear suitable protective clothing, eye protection and respiratory protective equipment.

The use of barrier creams to provide additional skin protection is also advised. In case of contact with the skin, rinse with plenty of clean water, then cleanse thoroughly with soap and water.

In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advise. If swallowed seek medical attention immediately – **do not** induce vomiting.

Nitoprime Zincrich and **Concure** products should not come into contact with skin or 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 provides additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water, in case of skin contact with **Nitoprime Zincrich** and **Concure 75 Clear**, remove immediately with resin removing cream followed by washing with soap and water. Do not use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advise. If swallowed, seek medical attention immediately – do not introduce vomiting.

Fire

Renderoc HF Premix, Concure P are non flammable.

Nitoprime Zincrich is 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 Zincrich 16°C



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Important note

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