

Patchroc GP



1

Patchroc GP
CI/SfB: (4-) Pr4
May 1998

Fast-setting emergency patching mortar for concrete pavements and floors

Uses

For the emergency reinstatement of localised patches in concrete pavements, airport aprons, access ramps, roadways and many industrial situations such as gangways and warehouse floors. Patchroc GP is particularly useful where interruption to traffic must be minimised. The product is alkaline in nature and will protect embedded steel reinforcement. It may be used internally and externally.

For the reinstatement of large areas of concrete pavements and floors, the use of Paveroc is recommended.

Advantages

- Rapid strength gain — will accept traffic in 2 hours
- High strength, abrasion and weather resistance
- Economical — can be bulked out with graded aggregate in some applications
- Contains no chloride admixtures
- Self-compacting, eliminates honeycombing and voids

Description

Patchroc GP is supplied as a ready to use blend of dry powders which requires only the site addition of clean water to produce a highly consistent, high strength, free-flowing repair concrete which self-compacts at fluid consistency. The material is based on a blend of cements, graded aggregates, special fillers and chemical additives to provide a mortar with good handling characteristics, while minimising water demand. Patchroc GP exhibits excellent thermal compatibility with concrete and good water repellent properties. The low water requirement ensures fast strength gain and long term durability.

Design criteria

Patchroc GP is designed for horizontal use, but can also be applied vertically with the aid of formwork. It may be applied up to a maximum thickness of 100 mm in one layer. Thicker sections up to 250 mm may be applied by the addition of graded silt-free aggregate. The material should not be applied at less than 12 mm thickness. Consult the local Fosroc office for further information.

Properties

The following results were obtained at a water : powder ratio of 0.10 and temperature of 20°C unless otherwise stated.

Testmethod	Typical result
Compressive strength (BS 1881, Pt 116: 1983):	15 N/mm ² @ 2 hours 50 N/mm ² @ 1 day 55 N/mm ² @ 3 days 60 N/mm ² @ 28 days
Working life:	40 minutes @ 10°C 20 minutes @ 20°C
Setting time:	60 minutes @ 10°C 40 minutes @ 20°C
Traffic time —	
Pedestrian:	3 hours @ 10°C 2 hours @ 20°C
Vehicular:	3 hours @ 10°C 2 hours @ 20°C
Coefficient of thermal expansion:	7 to 12 x 10 ⁻⁶ /°C
Fresh wet density:	Approximately 2300 kg/m ³ dependent on actual consistency used

Application instructions

Preparation

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 12 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.

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.

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

Reinforcing steel priming

Apply one full coat of Nitoprime Zincrich to all exposed reinforcing steel 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

Pedestrian and light vehicular traffic

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 at an application rate of 6 to 8 m²/litre, dependent on substrate porosity and profile. Any areas of the substrate which dry out before application of the primer must be redampened before continuing. Patchroc GP may be applied as soon as the primer becomes tacky.

Heavy vehicular traffic

Prime using Nitobond EP standard*. Thoroughly stir the individual components to disperse any settlement. Add the entire contents of the hardener to the base container and mix thoroughly for a least 3 minutes until a uniform colour is obtained, taking particular care to scrape the sides and bottom of the container. It is recommended that a Jiffy mixer on a heavy duty, slow speed electric drill is used.

To facilitate application at temperatures below 10°C the separate components should be warmed in hot water to a maximum of 25°C before mixing. This will, however, reduce the pot life to 20 minutes.

Alternatively, the materials should be stored in a heated building and only removed immediately before use.

The mixed product should be applied with a suitable stiff nylon-type brush and firmly scrubbed into the surface, ensuring an even coating. The Patchroc GP should be applied to Nitobond EP standard within 1½ hours at 20°C.

Mixing

Care should be taken to ensure that Patchroc GP 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.

Mixed consistency

Trowellable: 2.0 to 2.4 litres. Flowable: 2.5 to 2.7 litres.

Place the desired quantity of drinking quality water into the mixer and, with the machine in operation, add one full 25 kg bag of Patchroc GP and mix for 3 minutes until fully homogeneous. Do not mix for longer than this time to ensure that the available working life is not reduced. Note that powder must always be added to water.

Mixing warning

As with other 'one pack' repair mortars, Patchroc GP 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

At trowellable consistency apply the mixed Patchroc GP on to the primed substrate as soon as possible after mixing. The mortar should be applied evenly by trowel and tamped in place with a wood float to ensure full compaction. Thoroughly compact the mortar around any exposed steel reinforcement. Patchroc GP can be applied from a minimum of 12 mm to a maximum of 100 mm thickness in a single application. The maximum bay size is 4 m².

At pourable consistency for vertical applications and on horizontal sections between 100 and 250 mm the priming system will vary dependent on the size and location of the repair. Consult the local Fosroc office for further information.

Finishing

Patchroc GP should be struck off to the correct level and finished with a steel trowel to fully close the surface. If a textured surface is required, this can be achieved using a suitable roller or brush. The completed stiff surface should not be overworked.



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 30°C, the material should be stored in the shade and cool water used for mixing.

Curing

Patchroc GP is a cement-based repair mortar. In common with all cementitious materials, Patchroc GP must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR or Concure WB, sprayed on to the surface of the finished mortar in a continuous film, is recommended. 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 finishes

Patchroc GP is extremely durable and will provide an excellent hard wearing surface to the repaired locations. Surrounding floor areas may benefit from the application of an abrasion or chemical-resistant protective coating. For internal locations, Fosroc recommend the use of the Nitoflor FC range of protective coatings. These products provide a decorative and uniform appearance as well as protecting areas of the floor which might otherwise be at risk. Nitoflor FC products may be applied over the repair area after prior removal of the curing membrane generally after 3 days. The local Fosroc office should be contacted for advice about external protective overlays.

Cleaning

Nitobond AR, Patchroc GP and Concure WB 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 Fosroc Solvent 102.

Limitations

Patchroc GP should not be used when the temperature is below 5°C and falling. Do not mix part bags. Exposure to heavy rainfall prior to the final set may result in surface

scour. The product should not be exposed to moving water during application or totally immersed in water for the first 24 hours after application. If any doubts arise concerning temperature or substrate conditions, consult the local Fosroc office.

Estimating

Supply

Patchroc GP:	25 kg bags
---------------------	------------

Coverage and yield

Patchroc GP:	Approximately 12.0 litres / 25 kg bag (1.0 m ² at 12 mm thickness)
---------------------	---

Notes: The actual yield per bag of Patchroc GP will depend on the consistency used. 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.

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 to 4 to 6 months. Nitobond AR should be protected from frost.

Nitoprime Zincrich must be stored in accordance with the Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972.

Precautions

Health and safety

Patchroc GP 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 clothing, gloves, eye protection and respiratory 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.



Fire

Patchroc GP 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 CO₂ or foam. Do not use a water jet.

* See separate data sheet.



Fosroc Limited

Coleshill Road
Tamworth
Staffordshire B78 3TL
Tel 01827 262222
Fax 01827 262444
www.FosrocUK.com

Patchroc is the trade mark of Fosroc International Limited

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 or 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 or information given by it.