Fosroc® Paveroc

constructive solutions

High performance reinstatement mortar for concrete pavements and floors conforming to the requirements of BS EN 1504-3 Class R4

Uses

For the reinstatement of large areas of concrete pavements and floors to avoid the total replacement of bays

The product is alkaline in nature and will protect embedded steel reinforcement. It may be used internally and externally. Patchroc GP is recommended for emergency patching of small areas of concrete pavements and floors.

Paveroc is suitable for repair methods 3.1, 3.2, 4.4, 7.1, 7.2 as defined by BS EN 1504-3.

Advantages

- Rapid strength gain — will generally accept pedestrian traffic at 12 hours, significantly reducing down-time
- High strength, abrasion and weather resistance
- One component, pre-bagged to overcome site-batched variations requires only the site addition of clean water
- Excellent bond to the concrete substrate
- Shrinkage compensated
- Contains no chloride admixtures

Description

Paveroc 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 repair mortar.

It is based on Portland cements, graded aggregates, and chemical additives providing a mortar with good handling characteristics while minimising water demand. The low water requirement ensures good strength gain and long-term durability.

Paveroc is designed for horizontal use. It may be applied up to a maximum thickness of 100 mm. Thicker sections can be built up in layers. Material should not be applied at less than 12 mm thickness. Individual bay sizes should not exceed 18 m². Consult the local Fosroc office for further information.

Specification Clause

The repair mortar shall be Paveroc a one component cementitious mortar conforming to the requirements of BS EN 1504-3 Class R4

The cured mortar shall achieve a compressive strength of 65 MPa at 28 days and a drying shrinkage of ≤ 300 microstrain at 7 days.

Standards compliance

Paveroc complies with the classification R4 according to EN 1504-3, repair methods 3.1, 3.2,4.4, 7.1 and 7.2.

Paveroc complies with LU Standard 1-085 ‘Fire Safety Performance of Materials’.

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Paveroc

EN 1504-3
Structural and non structural repair methods 3, 4 and 7

Compressive strength	Class R4 (> 45 MPa)
Chloride ion content	< 0.05 %
Adhesive bond strength	≥ 2.0 MPa
Thermal compatability: feeze-thaw cycling with immersion	≥ 2.0 MPa
Carbonation resistance	Passes
Skid resistance	Class III: > 55 units wet tested
Elastic modulus in compression	46 GPa
Reaction to fire	Class A1
Dangerous substances	Complies with 5.4

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Properties

The following results were obtained at a water : powder ratio of 0.088 and a temperature of 20°C unless otherwise stated.

Test method	Standard	EN 1504 R4 Requirement	Test result
Compressive Strength	EN 12190:1999	≥ 45 MPa	@ 1 Day 20 MPa @ 7 days 45 MPa @ 28 Days 65 MPa
Bond strength by pull off:	EN 1542:1999	≥ 2.0 MPa	2.2 MPa
Chloride ion content:	EN 1015-17:2000	≤ 0.05 %	0.01 %
Freeze thaw cycling:	EN 13687-1:2002	≥ 2.0 MPa	2.0 MPa
Resistance to carbonation d_k	EN 13295:2005	d_k ≤ ref concrete	Conforms
Elastic modulus in Compression	EN 13412	≥ 20 GPa	46 GPa @ 28 days
Skid Resistance	EN 13036-4	Class III > 55	Class III
Fire rating	EN 13501-1	-	Class A1 Non-Combustible
Setting time	BS 4551 Pt14:1980	-	Initial set: 3.5 hours Final set: 5.0 hours
Working life:	-	-	@ 10°C 60min @ 20°C 55min @30°C 30min
Traffic time- Pedestrian: Vehicular:	-	-	@ 10°C 18 hours 36 hours @ 20°C 12 hours 24 hours @ 30°C 8 hours 16 hours
Chemical resistance	-	-	The low permeability of Paveroc severely retards chemical attack in aggressive environments. The cured mortar is impermeable to acid gases, waterborne chloride ions and oxygen.
Build Characteristics (hand applied) Minimum thickness: Maximum thickness: Maximum bay area	 - - -	 - - -	 12 mm 100 mm 18 m^2

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 the edges of the repair to a depth of at least 12 mm 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.

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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 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

Prime using Nitobond EP. Thoroughly stir the individual components to disperse any settlement. Add the entire contents of the hardener to the base container and mix thoroughly for at 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.

The mixed product should be applied with a suitable stiff nylon-type brush and firmly scrubbed into the surface, ensuring an even coating. The Paveroc should be applied to Nitobond EP standard within 1½ hours at 20°C. See separate product data sheet for further details.

Mixing

Care should be taken to ensure that Paveroc is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved Renderoc 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 1.9 to 2.2 litres of drinking quality water into the mixer.

With the machine in operation, add one full bag of Paveroc 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 2.2 litres.

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

Mixing warning

As with other 'one pack' repair mortars, Paveroc 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.

While the Nitobond EP is still tacky, apply the mixed Paveroc evenly by trowel and tamp in place with a wood float to ensure complete compaction. Thoroughly compact the mortar around any exposed steel reinforcement. Paveroc can be applied up to 100 mm in a single application.

Paveroc should be struck off to the correct level and finished with a steel trowel to a fully closed surface. A textured surface can be achieved with a suitable roller or brush. The finished surface should not be overworked.

Build-up

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

The surface of the intermediate layers should be comb scratch-keyed. A further application of Paveroc may proceed as soon as this layer has set.

Reprime with Nitobond EP and apply further Paveroc as described above.

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

Paveroc 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 Concure WB, 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 Concure WB

Large areas should be cured as trowelling progresses (0.5 m^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

Paveroc 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 overlayments.

Cleaning

Paveroc 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 Plus and Nitobond EP before curing, with Fosroc Solvent 102.

Estimating

Supply

Paveroc:	25 kg bags
Nitoprime Zincrich Plus:	1.9 litre and 800 ml cans
Nitobond EP	2.5 and 4.5 Kg packs
Concure WB	20 and 200 litre drums
Fosroc Solvent 102:	5 and 25 litre tins

Coverage and yield

Paveroc:	Approximately 11.5 litres / 25 kg bag (approximately 0.9 m^2 at 12 mm thickness)
Nitoprime Zincrich Plus:	8 m^2/litre
Nitobond EP	Approximately 2 m^2 / kg
Concure WB	5 m^2/ litre

Notes: the actual yield per bag of Paveroc will depend on the consistency used.

Limitations

Paveroc should not be used when the temperature is below 5°C and falling. Do not mix part bags.

Paveroc 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

The product has a shelf life of 12 months from the date of manufacture if kept in dry storage in the original, unopened bags. If stored at high temperatures and/or high humidity the shelf life may be reduced to less than 6 months.

Precautions

Health and safety

For further information refer to the appropriate Safety Data Sheets available at www.fosroc.com

Fire

Paveroc is non-flammable.

Nitoprime Zincrich Plus and Fosroc Solvent 102: are flammable. Keep away from sources of ignition. No Smoking. In the event of fire, extinguish with CO_2 or foam. Do not use a water jet

Flash points

Nitoprime Zincrich Plus:	41°C
Fosroc Solvent 102:	33°C

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