Patchroc RSP100

constructive solutions

Rapid-setting patch repair concrete for pavement and floor depths between 10 mm and 200 mm deep

Uses

For the emergency reinstatement of damaged or deteriorated concrete. The material is particularly suitable for repairs to airport runways, aprons and areas where wheeled traffic requires fast return to service. It may be used internally and externally.

Advantages

- Rapid strength gain - will accept vehicular traffic in 2 hours
- High strength, abrasion and weather resistance
- Contains no chloride admixtures

Description

Patchroc RSP100 is a blend of dry powders and graded aggregates which requires only the site addition of clean water to produce a highly consistent, high strength, repair concrete. The material is a blend of inorganic cements, special fillers and chemical additives to control the rate of strength gain.

Technical support

Fosroc offers comprehensive technical support, including help at the design stage, application advice and on site problem solving. Specifiers and contractors are encouraged to contact our trained staff for answers to their questions.

For further information please contact Fosroc.

Design criteria

Patchroc RSP100 is designed for horizontal use but can also be used vertically with the aid of formwork. It is suitable for use at nominal thickness of 200mm.

The material should not be applied at less than 10mm thickness. Horizontal surface areas should be restricted to bay sizes not exceeding 8m^2. Consult your local Fosroc office for further information.

Typical Properties

The physical properties given are typical of those obtained in practice.

Test Method	Typical Result
Compressive strength(BS1881:Part 116: 1983) w/p ratio 0.1	
100 cubes wet cured @ 27°C:	30 N/mm^2 @ 3 hours 45 N/mm^2 @ 1 day 50 N/mm^2 @ 7 days 55 N/mm^2 @ 28 days
Working life:	30 mins @ 25°C 20 mins @ 35°C
Setting time (BS4550:Part 3:1978)	
w/p ratio 0.1 @ 25°C -	initial set: 40 mins final set: 50 mins
Traffic time (@ 25°C) -	pedestrian: 1 hour vehicular: 2 hours
Fresh wet density:	approximately 2270kg/m^3 dependent on actual consistency used.

Specification clauses

Fast setting patch repair concrete

The fast setting repair concrete shall be Patchroc RSP100, a single component cement-based blend of powders and graded aggregates to which only the site-addition of clean water shall be permitted. The cured patch repair concrete shall achieve 30N/mm^2 after 3 hours and 45N/mm^2 after 1 day (@ 25°C). The product shall be capable of accepting pedestrian and vehicular traffic after 2 hours (@ 25°C).

Patchroc RSP100

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 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-off test.

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

Temporary formwork should be fitted tightly into all existing pavement and floor joints which abut the repair zone in order to prevent grout loss during the repair process.

Priming

Prior to placing, the prepared concrete substrate should be saturated by flooding with clean water. Immediately prior to the application of Patchroc RSP100, the water should be removed leaving the substrate fully saturated.

Providing the substrate has been properly soaked, further priming is not normally necessary. Where soaking is not possible, the following procedure should be used. A slurry primer should be prepared consisting of 1 volume Nitobond SBR to 1 volume fresh cement. Patchroc RSP100 may be applied as soon as the primer becomes tacky.

Note: If the primer dries before Patchroc RSP100 is applied, it must be removed and the area reprimed before continuing.

Mixing

Care should be taken to ensure that Patchroc RSP100 is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using a "Renderoc" mixing paddle in a slow speed (400/500 rpm) heavy-duty (min 1kw) drill is acceptable. Free-fall mixers must not be used. Mixing of part bags or by hand 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 2.3 - 2.6 litres of drinking quality water and pour into the mixer. With the machine in operation, add 2/3 of one 25kg bag of Patchroc RSP100 and mix for one minute before adding the rest of the powder. Mix for a further 3 to 4 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.

When the drill and paddle mixing method is used, the complete measured volume of water should be placed in the mixing drum. With the paddle rotating, add one full 30kg bag of Patchroc RSP100 and mix for 3 to 5 minutes until a smooth even consistency is obtained.

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

Each repair should be poured or pumped in a single continuous operation. Repairs may be surface finished using a trowel or wood float. If a textured surface is required, this can be achieved using a suitable roller or brush as the material begins to stiffen. The completed surface should not be overworked. Patchroc RSP100 can be applied up to 200mm thickness in a single application.

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.

Patchroc RSP100

Curing

Patchroc RSP100 is a cement-based product. In common with all cementitious materials, Patchroc RSP100 must be cured immediately after finishing in accordance with good concrete practice. The use of Nitobond AR or Concure RB90, sprayed on to the surface of the finished mortar in a continuous film, is recommended. In fast drying conditions, or where the Patchroc RSP100 will be overcoated or topped with tiles curing with polythene sheeting taped down at the edges is recommended. In cold conditions, the finished repair must be protected from freezing.

Cleaning

Patchroc RSP100 and Nitobond SBR should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

Limitations

Patchroc RSP100 should not be used when the temperature is below 5°C and falling. Do not mix part bags. The product should not be exposed to moving water during application. Exposure to heavy rainfall prior to the final set may result in surface scour and may reduce the strength. If any doubts arise concerning temperature or substrate conditions, consult your local Fosroc office.

Patchroc RSP100 has moderate abrasion resistance. Where excellent abrasion resistance and a fast return to service is required, Nitomortar PE Concrete is recommended.

Estimating

Supply	
Patchroc RSP100:	25kg bags
Nitobond SBR:	25 and 200 litre drums
Nitobond AR:	20 litre drums
Concure RB90:	25 and 200 litre drums
Coverage	
Patchroc RSP100:	approximately 11.7 litres / 25kg bag ($0.63m^2$ at 20mm thickness)
Nitobond SBR:	2 to 5 m^2/litre (diluted as slurry bond coat)
Concure RB90:	3.5 to 5 m^2/litre

Note: the actual yield per bag of Patchroc RSP100 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.

In accordance with Commercial or Health & Safety requirements packaging detail may alter. Please contact your local Fosroc office for detail.

Storage

Shelf life

All products have a shelf life of 9 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. Nitobond AR should be protected from frost.

Patchroc RSP100

Precautions

Health & safety

Patchroc RSP100 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.

Nitobond SBR and Concure RB90 should not come in contact with the skin and 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 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 skin contact with Nitobond SBR and Concure RB90, 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 advice. If swallowed, seek medical attention immediately - do not induce vomiting.

Fire

Patchroc RSP100 and Nitobond SBR are non-flammable. Concure RB90 is 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.

For further information see relevant Material Safety Data Sheet.