

# PATCHROC F50

## Rapid-setting High Strength patch repair concrete for pavements and floors

### 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.

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

### Advantages

- Rapid strength gain-will accept vehicular traffic within 12 hours
- High Compressive strength within 4 hours, abrasion and weather resistance.
- Self-compacting-eliminates honey-combing and voids.

### Description

PATCHROC F50 is supplied as a ready to use blend of dry powders and graded aggregates which requires only the site addition of clean water to produce a highly consistent, high strength, free-flowing repair concrete which self-compacts.

The material is a blend of inorganic cements, special fillers and chemical additives to control the rate of strength gain to provide a fluid micro-concrete with good handling characteristics. PATCHROC F50 exhibits excellent thermal compatibility with concrete.

### Technical Support

Fosroc offers a comprehensive range of high quality, high performance concrete repair and construction products. In addition, Fosroc offers a worldwide technical support and on-site service to specifiers, end-users and contractors.

### Design Criteria

PATCHROC F50 is designed for horizontal use but can also be used vertically the aid of formwork. It is suitable for use at nominal thickness of 100 mm. 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 20mm thickness. Aggregate should not be added at applied thickness between 20mm and 100mm without specific advice from Fosroc. Horizontal surface areas should be restricted to bay sizes not exceeding 4m<sup>2</sup> and 12m<sup>2</sup> where filled with aggregate. Consult the local Fosroc office for further information.

### Typical Properties

The following results were obtained at water: powder ratio of 0.16 and temperature of 25+/-2°C.

---

#### Compressive strength

**ASTM C109/C109M** : 50 +/- 3 N/mm<sup>2</sup> @ 4 hours  
70 +/- 5 N/mm<sup>2</sup> @ 7 days

Flow (Concrete Flow Cone): 67 – 75 cm

---

**Flexural Strength** : 30-35 kg/cm<sup>2</sup> at 4 hours  
73-79 kg/cm<sup>2</sup> at 7 days

#### Setting time

**Initial set** : 10-15 mins  
**Final set** : 30-50 mins

---

#### Traffic time :

**Pedestrian** : 1-2 hours  
**Vehicular** : +/- 4 hours

---

# PATCHROC F50

## Application instructions

### Preparation

Saw cut or cut back the extremities of the repair locations to a depth of at least 20mm to avoid feather-edging and to provide a square edge. Break out the complete repair area to a minimum depth of 20mm 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 scabble 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 about the repair zone in order to prevent loss during the repair process.

### Substrate priming

Prior to placing, the prepared concrete substrate should be saturated by flooding with clean water. Immediately prior to the application of PATCHROC F50, 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. The substrate should be well soaked with clean water for as long as possible and any excess removed.

NITOBOND AR primer should then be scrubbed well into the surface. PATCHROC F50 may be applied as soon as the primer becomes tacky.

Note: If the primer dries before PATCHROCF50 is applied, re-priming should take place exactly as described above before continuing.

## Mixing

Care should be taken to ensure that PATCHROC F50 is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitably sized drum using an approved spiral paddle in a slow speed (400/500 rpm) 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 labor availability is adequate to enable the placing operation to be carried out continuously.

Measure 4.7 to 5.0 liters of drinking quality water and pour three-quarters into the mixer. With the machine in operation, add one full 30 kg bag of PATCHROC F50 and mix for 1 minute before adding the rest of the water.

Mix for 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 F50 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

The mixed material should be placed within 10 minutes of mixing in order to gain the full benefit of fluidity. Each repair should be poured or pumped in a single continuous operation. Repair 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 F50

PATCHROC F50 can be applied up to 100mm thickness in a single application. For repair section deeper than 100mm, it will be necessary to 'fill-out' PATCHROC F50 with suitable and properly graded aggregate in order to minimize temperature rise.

Aggregate should be in a saturated, surface dry condition. The quantity of aggregate required will vary dependent on the nature and configuration of the repair location. Generally, for sections between 100mm and 250mm deep, the following mix design should be considered :

30 kg PATCHROC F50  
4.7-5.2 liter clean water  
6 - 9 kg of 10-20 mm aggregate

Adding above aggregate can influence the Compressive and Flexural strength result. Site trial is needed to check the result.

The water demand may vary dependent on the condition of the aggregate.

To place the filled PATCHROC F50 at the lower water content, the use of a vibrating poker is desirable, to aid compaction. The quantity of aggregate should never exceed 1 part aggregate to 2 part PATCHROC F50 (by dry weight). Trial mixes should be made in order to ensure the optimum addition of both water and aggregate.

Note the minimum applied thickness of PATCHROC F50 is 20mm. Aggregate should not be added at applied thickness between 20mm and 100mm.

## 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 below 5°C.

## High temperature working

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

## Curing

PATCHROC F50 is a cement-based product.

In common with all cementitious materials. PATCHROC F50 must be cured immediately after finishing in accordance with good concrete practice.

The use of CONCURE series (like Concure P ,Concure PI), sprayed on to the surface of the finished mortar in a continuous film, is recommended.

In fast drying conditions or hot condition, supplementary curing with polythene sheeting tape down at the edges must be used.

In cold conditions, the finished repair must be protected from freezing.

## Cleaning

PATCHROC F50 and NITOBOND AR should be removed from tools, equipment and mixers with clean water immediately after use. Cured material can only be removed mechanically.

## Limitations

- PATCHROC F50 should not be used when the temperature is below 5°C.
- 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.

# PATCHROC F50

## Estimating

### Supply

<b>PATCHROC F50</b>	: 30 kg bags
<b>Nitobond AR</b>	: 20 litre, 210 liter drums
<b>Concure P, Concure PI</b>	: 20 and 210 liter

### Coverage and Yield

<b>PATCHROC F50</b>	approximately 15 liter/30kg bag (at 20 mm thickness)
<b>Nitobond AR</b>	: 6 to 8 m <sup>2</sup> liter
<b>Concure</b>	: 3 to 5 m <sup>2</sup> liter

Note: The actual yield per bag of PATCHROC F50 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 self -life may be reduced.

Nitobond AR should be protected from frost.

## Precautions

### Health and safety

PATCHROC F50 contains cement powder which, when mixed or become damp, release alkalis which can be

harmful to the skin. During use, avoid inhalation of dust and contact with the 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 and seek medical advice. If swallowed, seek medical attention immediately-do not induce vomiting.

Nitobon AR, Concure series should not come in contact with the skin and eyes, or be swallowed.

Ensure adequate ventilation and avoid inhalation of vapors. Some people are sensitive to product. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used.

### Fire

PATCHROC F50 and NITOBOND AR are non-flammable.

For further information, refer to the Safety Data Sheet.

# PATCHROC F50



constructive solutions



**PT.FOSROC**  
**Indonesia**

Jl.Akasia II Blok A8 No.1  
Delta Silicon Industrial Park  
Lippo Cikarang  
Bekasi 17550  
Indonesia

[www.fosroc.com](http://www.fosroc.com)

#### 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 of 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 of information given by it.

**telephone:**  
+62 21 897 2104-06

**fax:**  
+62 21 897 2107

**email:**  
[Indonesia@Fosroc.com](mailto:Indonesia@Fosroc.com)