

## Non metallic, monolithic surface hardening compound

### Uses

Nitoflor Hardtop provide a highly abrasion resistant surface to concrete floors by the dry shake-on method which ensures that the hardwearing surface bonds monolithically to the base concrete. They are ideally suited for all industrial areas subject to the heaviest traffic, e.g. loading bays, trucking lanes, car parks, workshops, machine shops, ramps and spillways.

### Advantages

- Non metallic - does not rust or stain.
- Provides a hard, abrasion resistant surface
- Forms monolithic bond with base concrete
- Easy and economical to apply

### Description

Nitoflor Hardtop is quality controlled, factory blended powder which are ready to use on site. They contain special hardwearing aggregates which have been selected for abrasion and wear resistant properties as well as shape and size. These latter considerations, together with the use of high performance workability admixtures, produces a material which is easy to trowel into the surface of fresh, wet concrete. Nitoflor Hardtop cure monolithically to provide a dense, non-porous surface which is extremely hardwearing and abrasion resistant. Monolithic cure ensures that problems normally associated with thin 'granolithic' screeds, viz., shrinkage, cracking, etc., are completely overcome.

Being non-metallic, Nitoflor Hardtop provide a non-slip surface which will never rust and disintegrate.

### Technical support

Fosroc offers a technical service to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the country.

### Properties

Abrasion resistance (IS : 1237-1980)

Nitoflor Hardtop has been tested as per IS:1237 - 1980 against control concrete for abrasion resistance.

Test results showed that Nitoflor Hardtop improves the abrasion resistance of concrete by 225% when tested as per guidelines in IS:1237 - 1980.

## Specification clause

### Non metallic surface floor hardener

All concrete floors shall be surfaced or broadcast with Nitoflor Hardtop a non-metallic monolithic surface floor hardening compounds containing rust free, hardwearing aggregates. The aggregates shall have a Moh's hardness of not less than 9 for Nitoflor Hardtop.

### Compressive strength

Nitoflor Hardtop shall possess a minimum compressive strength of 60N/mm<sup>2</sup>. when tested as per IS: 516-1959.

## Application instructions

### Base concrete

The base concrete should have a minimum cement content of 300 kg/m<sup>3</sup>. The concrete mix should be designed to minimise segregation and bleeding. The concrete should have a slump of between 75 and 100 mm.

Use of Fosroc's water reducing admixture is recommended. The base concrete should be laid and compacted in accordance with good concrete practice. Accurate finished profile and minimum laitance build-up should be ensured. Particular attention should be paid to bay edges and corners to ensure full compaction.

Nitoflor Hardtop is applied for different types of industrial use.

Application rate (kg/m <sup>2</sup> )	Intended traffic use	Avg. Wear (IS:1237-1980)
7.0	Heavy	<2mm
5.0	Medium	>2 <3.5mm
3.0	Light	>3.5 <4mm

It is recommended that the floor be marked off into bays of known area. Sufficient material should then be laid out to meet the required spread rates.

Application of Nitoflor Hardtop can begin when the base concrete has stiffened to the point when light foot traffic leaves an imprint of about 3mm. Any bleed water should by now have evaporated.

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Nitoflor Hardtop is applied in two stages.

(a) The first application is made using 50% to 70% of the total material. Nitoflor Hardtop is evenly broadcast onto the concrete surface. When the material becomes uniformly dark by the absorption of moisture from the concrete this first application can be floated. Wooden floats or, on large areas, the power trowel with disc may be used. It is important, however, that the surface is not over worked.

(b) Immediately after floating, the remaining Nitoflor Hardtop is sprinkled evenly over the surface. Again moisture is absorbed and the surface can be floated in the same way as before.

Final finishing of the floor using a power trowel can be carried out when the floor has stiffened sufficiently so that damage will not be caused.

## Timing of Application

The timing of application Nitoflor Hardtop is important and critical. If applied too early, bleed or excess water will wash away the cementitious content of the products, thereby making them ineffective. Also denser aggregates sink into the concrete.

If the application of Nitoflor Hardtop is done too late, there will not be sufficient water/moisture to absorb the material into the concrete. Material forcibly applied and trowelled thus, will cause cracks on the surface later, as there is no water/moisture to hydrate the product.

## Bay edges

While applying Nitoflor Hardtop at the edges of the concrete floor or, at the end of bays, extra precaution should be taken by way of sprinkling more material and finishing it smoothly with a steel trowel. This is an additional protection particularly to bay edges where the reaction due to heavy impact is more.

## Curing

Tests have shown that proper curing of concrete floors treated with products such as Nitoflor Hardtop is essential to ensure the physical properties of the floor.

The most efficient method of curing by using Concure WB, curing membrane which conforms to ASTM and DOE specifications. However, in indoor applications where curing conditions are less arduous and breakdown of the membrane slower, alternative approved methods of curing such as polythene sheeting or water ponding are acceptable.

## Ready to use

Nitoflor Hardtop is supplied ready to use on site. Cement or aggregates should never be added to Nitoflor Hardtop.

## Coloured floors

When a coloured floor is required, it is strongly recommended that a job site trial area is laid.

## Surface treatments

Penetration type surface treatments are recommended to give low porosity and dust proof property.

## Limitations

- For concretes with optimised water cement ratios, Nitoflor Hardtop shall not be broadcast in excess of 3 - 4 kg /m<sup>2</sup>. For such applications, consult Fosroc.
- Nitoflor Hardtop is not advised for broadcast over concrete in subzero temperatures, such as, floorings for cold storages etc. However, concrete on which Nitoflor Hardtop has been applied can be subjected to sub zero temperatures after curing.

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## Estimating

### Packaging

Nitoflor Hardtop is supplied in sealed 25 kg HDPE bags.

### Storage

If kept in original undamaged packing, the shelf life of Nitoflor Hardtop should be at least 12 months under normal warehouse conditions.

### Precautions

#### Health & Safety instructions

Nitoflor Hardtop contains portland cement and are therefore alkaline when in contact with water. Prolonged contact with the skin should be avoided. Any eye contamination should be washed immediately with plenty of clean water and medical advice sought.

#### Fire

Nitoflor Hardtop is not flammable.

## Additional information

Fosroc manufactures a wide range of products specifically designed for the specialist flooring industry. These include:

- liquid-applied
- chemically-resistant coatings
- self-levelling epoxy toppings and
- trowel-applied, highly abrasion-resistant screeds.

Among them are products suitable for use in:

- the food and drinks industry
- the pharmaceutical industry and
- in areas subjected to heavy industrial use.

Where the control of static electricity is an important consideration, Fosroc have developed conductive and dissipative seamless floor systems. In addition, a wide range of complementary products is available. This includes joint sealants, waterstops, waterproofing membranes and specialised products for the repair and refurbishment of damaged reinforced concrete.

For further information about products or publications, contact the local Fosroc office.

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## Important note :

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, 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.



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