Fosroc Nitoflor Emeritop

constructive solutions

Emery based monolithic surface hardening compound for concrete floors

Uses

Nitoflor Emeritop provides an extremely hard abrasion resistant surface to fresh concrete floors. Application by the dry shake method ensures the hard wearing surface bonds monolithically to the base concrete. It is ideally suited for all industrial areas subjected to the heavest traffic, e.g. power stations, heavy industry, agricultural buildings, distillation plants, laboratories, abattoirs, warehouse floors, loading bays and work shops.

Advantages

- Supplied ready to use - no additives required
- Contains aggregate which provides an extremely hard wearing, abrasion and impact resistant surface
- Forms monolithic bond with fresh concrete base
- Hard, dense surface resistant to oils and grease
- Available in a range of colours to improve working environment
- Non-metallic aggregate - will not rust when wet

Description

Nitoflor Emeritop surface hardening compound is a quality controlled, factory blended powder which is ready to use on-site. It consists of selected and graded aggregate, Portland cement and special additives to improve workability, providing a material which is easy to trowel into the surface of fresh wet concrete. Nitoflor Emeritop cures monolithically to provide a dense, non porous surface which is extremely hard wearing and abrasion resistant. Monolithic cure ensures that problems normally associated with thin ("granolithic") screeds e.g. curling, shrinkage, cracking, etc. are completely overcome.

The Emery is an extremely hard, chemically inert aggregate which resists polishing when exposed after initial wear and provides a skid resistant surface even when wet.

Nitoflor Emeritop is available in natural (concrete grey) colour as standard. Special colours, including Brick Red, Green and Off-White can be produced on request for large orders.

Technical support

Fosroc offers a comprehensive range of high performance, high quality flooring, jointing and repair products for both new and existing floor surfaces. In addition, Fosroc offers a technical support package to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the world.

Design criteria

Base concrete

The base concrete should have a minimum cement content of 300 kg/m^3. The concrete mix should be designed to minimise segregation and control bleeding, although some limited bleed is desirable to ensure sufficient moisture is available to wet out the Nitoflor Emeritop when it is first applied.

The use of water reducing admixtures from the Fosroc Conplast* range is strongly recommended in order to achieve a water:cement ratio below 0.55. The base concrete should have an on-site slump of between 75 and 100 mm.

The base concrete should be laid and compacted in accordance with good concrete practice, taking care to ensure accurate finished profile and minimum laitance build up. Particular attention should be paid to bay edges and corners to ensure full compaction of the base concrete – see Instructions for use, Bay edges.

Vacuum dewatering is not recommended.

Properties

Abrasion resistance

Test methods similar to those recommended in ASTM C779 - 89a, procedure B indicate that Nitoflor Emeritop improves the abrasion resistance of even the best untreated concrete floors by over 300%.

Compressive strength (to BS 1881 part 116 1983)

At water contents equivalent to those obtained in practical applications the typical 28 day compressive strength of Nitoflor Emeritop cubes is 70 N/mm^2.

Hardness (Mohs scale)

The Dynagrip emery based aggregate contained within Nitoflor Emeritop has a hardness value of 9 on the Mohs original scale.

Other physical properties of Dynagrip (to BS 812)

Aggregate impact value :	8.0 (part 112. 1990)
Aggregate crushing value:	10 (part 110. 1990)
Aggregate abrasion value:	13% by wt.

Electrical properties

The electrical resistance of fully cured Nitoflor Emeritop is 3 x 10^4 to 5 x 10^5 ohms.

Specification

Floors shall be surfaced where shown with Nitoflor Emeritop, a monolithic surface hardening compound containing non-metallic, rust-free Dynagrip aggregates. The aggregate shall have a value not less than 9 on the Mohs original scale and the compound shall have the ability to improve the abrasion resistance of concrete by 300% when measured in accordance with the requirements of ASTM C779 - 89a procedure B.

Nitoflor Emeritop powder shall be applied to the freshly-laid concrete floor by the dry shake method. It shall be applied at the point where light foot traffic leaves an imprint of about 3-6 mm.

The powder shall be applied in two stages, in full accordance with the manufacturer's instructions, to achieve an overall application rate not less than 5 kg/m^2. Special attention shall be paid to bay edges in accordance with the manufacturer's written requirements.

Instructions for use

Nitoflor Emeritop should be applied at an even application rate of 5kg/m^2. It is recommended that the floor be marked off into bays of known area. Sufficient material should then be laid out to meet the recommended spread rate.

Application of Nitoflor Emeritop should begin without delay when the base concrete has stiffened to the point when light foot traffic leaves an imprint of about 3-6 mm. Any bleed water should now have evaporated, but the concrete should have a wet sheen.

On large floors it will be necessary to work progressively behind the laying team to ensure application at the correct time.

Nitoflor Emeritop is applied in two stages.

a) The first application is broadcast at an even rate of 3kg/m^2 onto the concrete surface. When the material becomes uniformly dark by the absorption of moisture from the base concrete, this first application can be floated. Wooden floats or, on large areas, a power float, may be used. It is important, however, that the surface is not overworked.

b) Immediately after floating, the remaining 2kg/m^2 of Nitoflor Emeritop is applied evenly over the surface at right angles to the first. Again, when moisture has been absorbed the surface can be floated in the same way as before.

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

Bay edges

Where bay edges are likely to suffer particularly heavy wear or impact, and where saw-cut transverse control joints are to be located, it is desirable to give these areas additional protection, by one of the following methods prior to full treatment of the entire surface:

a) Immediately after levelling the freshly placed concrete, Nitoflor Emeritop should be sprinkled by hand at a rate of 0.5 kg/linear m. (5 kg/m^2) in a strip 100 mm wide along the bay edge and hand-trowelled into the surface.

b) Immediately after levelling the freshly placed concrete, remove a wedge of the concrete 10 mm deep at the slab edge and tapered up to slab level. Replace this with a very stiff paste of Nitoflor Emeritop mixed thoroughly with a small amount of water. Ensure it is fully compacted on to the base concrete.

These reinforced areas will be further strengthened when the subsequent full treatment is applied.

Timing of the application of Nitoflor Emeritop is important and care should be taken to ensure adequate labour, machinery and material is available to complete the whole area while sufficient moisture is available to fully react with the powder to provide a good dense finish. Conversely, the full benefit will not be achieved if the material is applied too early when bleed water is still present.

Any addition of water to wet out the surface on either the first or second application of Nitoflor Emeritop will be detrimental to the overall quality of the floor.

Pigmented floors require extra care and need to be protected from damage and staining after completion. It is essential that the correct recommended rate of application is achieved over the entire floor area in order to avoid possible localised variations in shading.

Note: It is recommended that Nitoflor Emeritop is applied by an approved Fosroc specialist applicator who has been given detailed training in its use. For further information, please contact your local Fosroc office or representative.

Cleaning

All equipment should be washed with clean water immediately after use and before the material has hardened.

Curing

Proper curing of concrete floors treated with Nitoflor Emeritop is essential to the physical properties of the finished floor, however, if the floor is to receive further surface treatments please consult your local Fosroc office for advise on recommended curing methods.

For indoor applications where curing conditions are less ardous and breakdown of curing membrane is slower alternative approved methods of curing such as polythene sheets taped at the edges is acceptable.

Surface treatments

Subsequent surface treatments are not normally necessary with Nitoflor Emeritop because of the high density, low porosity finish. Where further treatments are required please consult your local Fosroc office.

Limitations

- Do not use Nitoflor Emeritop in areas exposed to acids and their salts or other materials known to rapidly attack or deteriorate concrete containing Ordinary Portland Cement.
- Do not apply to concrete containing calcium chloride or concrete having greater than 3% air entrainment.
- Where a coloured floor is required, it is strongly recommended that a site trial is undertaken to assess possible local variations caused by aggregates and sands used in the base concrete.

Estimating

Supply

Nitoflor Emeritop	:	25 kg bags

Coverage

Nitoflor Emeritop	:	3 - 5 m^2/bag

Applications should comply with the recommended rate to obtain the published performance characteristics. Any reduction may have a detrimental effect on the finished floor's abrasion resistance and, in the case of pigmented floors, the quality and consistency of the finish.

The average figures for liquid products are theoretical. Due to the variety and nature of possible substrates, and wastage factors, practical coverage figures will be reduced.

Storage

If protected from the environment in original undamaged packing, the shelf life of Nitoflor Emeritop, Nitoflor FC100 and Nitoflor FC140 is 12 months.

If stored in high temperature and high humidity locations the shelf life may be reduced.

Precautions

Health and safety

Nitoflor Emeritop contains cement powders which when mixed or become damp, release alkalis which can be harmful to the skin.

Nitoflor Emeritop is irritating to the eyes, respiratory system and skin. Avoid inhalation of dust and contact with skin and eyes. Wear suitable gloves and eye protection.

In case of contact with skin, wash with water. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

For further information, see Product Safety Data Sheet.

Fire

Nitoflor Emeritop is non-flammable.

Fosroc Nitoflor Emeritop

Additional Information

Fosroc manufactures a wide range of complementary products which include :

- waterproofing membranes & waterstops
- joint sealants & filler boards
- cementitious & epoxy grouts
- specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc's 'Systematic Approach' to concrete repair features the following :

- hand-placed repair mortars
- spray grade repair mortars
- fluid micro-concretes
- chemically resistant epoxy mortars
- anti-carbonation/anti-chloride protective coatings
- chemical and abrasion resistant coatings

For further information on any of the above, please consult your local Fosroc office - as below.

*** Denotes the trademark of Fosroc International Limited**

† **See separate data sheet**

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 Service. **All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.**

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