

Nitoflor TF5000

Heavy duty, 5 mm thick, epoxy resin floor screed

Uses

Nitoflor TF5000 has been designed for use as a 5 mm thick floor screed in environments where high resistance to mechanical and chemical attack is required. Typical areas of use include engineering plants, chemical plants, traffic aisles and food processing areas. In areas where high degrees of cleanliness are required, the surface of Nitoflor TF5000 can be sealed with either Nitoflor FC130† or Nitoflor FC140† epoxy resin floor coatings.

Advantages

- Durable: provides long term protection in heavy industrial environments
- Improves efficiency: seamless surface aids traffic flow and cleaning
- Good resistance: to a wide range of industrial chemicals
- Tough: resists high impact and point loading
- Non-taint: can be applied in close proximity to exposed food

Standards compliance

Nitoflor TF5000 and Nitoprime 31 have been evaluated by the Leatherhead Food Research Association in the United Kingdom for effect on tainting of foodstuffs during application. These tests confirmed a minimal risk of tainting in both the wet and dry state. Further information is contained in Food Research Association report number P3300.

Description

Nitoflor TF5000 consists of graded sands bound together with a pigmented epoxy resin binder. It is supplied as a four component system, pre-weighed for on-site mixing. When laid, it produces a matt, slightly textured, anti-slip surface.

Nitoflor TF5000 product is available in a range of standard colours.

Technical support

Fosroc offers comprehensive technical support, including help at the design stage, application advice and on the 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

Nitoflor TF5000 is designed for application at a nominal thickness of 5 mm.

Substrates should be dry and not suffer, or be likely to suffer, from rising damp. If necessary, suitable damp-proof membranes should be installed to prevent this. Substrates should not have a relative humidity greater than 80% at the time of installation.

Properties

Mechanical Characteristics

Compressive strength (ASTM C109:90)	: 85N/mm ²
Flexural strength (BS 6319, Pt 3)	: 28N/mm ²
Tensile strength (BS 6319, Pt 7)	: 16N/mm ²
Abrasion resistance (ASTM C501)	: 0.77 mg/1000 cycles,
Bond strength to concrete	: > cohesive strength of the concrete
Indentation characteristics Modified US MIL-D-3134	: No indentation from a height of 2.4 m
Curing characteristics at	: @20°C @30°C

Nitoflor TF5000

Pot life	: 45 mins	30 mins
Initial hardness	: 18 hours	16 hours
Full cure	: 7 days	5 days

Nitoprime 25

Pot life	: 45 mins	20 mins
Maximum overlay time	: 3 hours	1½ hours

Nitoflor TF5000

Chemical resistance

Fully cured blocks of Nitoflor TF5000 have been tested in a wide range of aggressive chemicals commonly found in industrial environments. Tests were performed by constant immersion over a set period, followed by visual inspection and testing for Shore D hardness.

Acid (m/v)

Hydrochloric acid 36%	: Resistant
Sulphuric acid 10%	: Resistant
Phosphoric acid 50%	: Resistant
Nitric acid 30%	: Resistant
Lactic acid 22.5%	: Resistant
Citric acid 80%	: Resistant

Alkalis (m/v)

Sodium hydroxide 24%	: Resistant
Ammonia 35%	: Resistant

Solvents & organics

Butanol	: Resistant
White spirit	: Resistant
Oil/grease/petrol	: Resistant
Xylene	: Resistant

Aqueous solutions

Bleach	: Resistant
Saturated sugar	: Resistant
Saturated urea 10%	: Resistant

All the above properties have been determined by laboratory controlled tests and are in excess of those expected in practice.

Nevertheless, success in use will be determined by the implementation of good housekeeping practices.

Specification clauses

The epoxy resin floor screed shall be Nitoflor TF5000 from Fosroc. The screed shall be 5 mm thick with a compressive strength of 85 N/mm², a flexural strength of 28 N/mm², and a tensile strength of 16 N/mm². The screed shall provide abrasion resistance in accordance with ASTM C501, having a maximum weight loss of 0.77 mg/1000 cycles.

Application instructions

Surface Preparation

It is essential that Nitoflor TF5000 is applied to sound, clean and dry surfaces in order that maximum bond strength is achieved between the substrate and the flooring system. All dust and debris should be removed prior to application of the product or its primer.

New concrete floors

Should be at least 21 days old (at 20°C) with maximum moisture content not exceeding 5%. Laitance deposits on new concrete floors are best removed by light grit blasting, mechanical scabbling or grinding.

Old concrete floors

Again, mechanical cleaning methods are strongly recommended on old concrete floors particularly where heavy contamination by oil and grease has occurred or existing coatings are present. These may well have been absorbed several millimetres into the concrete. To ensure adhesion, all contamination should be removed. Proprietary chemical degreaser may be used on small areas of light contamination only.

Steel surfaces

Steel surfaces should be degreased and grit blasted to SA2½ immediately prior to application.

Priming

All surfaces treated with Nitoflor TF5000 should be primed with Nitoprime 25, a solvent based epoxy resin primer designed for maximum absorption and adhesion to concrete substrates. Add the entire contents of the smaller hardener tin to the base tin and mix thoroughly. Once mixed, immediately apply the primer in a thin continuous film to the clean prepared surfaces. Work the primer into the surface and avoid over application and puddling. On porous floors, the Nitoprime 25/31 will be absorbed very quickly leaving characteristic light coloured dry patches. It is recommended that a second priming coat is applied in these areas.

While still wet, dress the surface with ½ kg/m² of Antislip Grain No.3 to provide a key for the application of Nitoflor TF5000. Ensure that the primer is touched dry prior to commencing application.

Nitoflor TF5000

Mixing

It is important that Nitoflor TF5000 is mixed correctly.

Pour the entire colour pack into the base container and mix for 15-30 seconds.

Add the entire contents of the hardener into the mix and stir for further 30 seconds.

Gradually empty the filler (aggregate) into the mix of base, colour pack and hardener and continue mechanical mixing, using a suitable Fosroc mixing paddle fitted to a slow speed forced action mixer, for a further 2-3 minutes, until all components are thoroughly blended.

Application

The mixed Nitoflor TF5000 should be spread to uniform thickness on the primed surface using either a garden rake or the edge of a plastic trowel. The material should be tamped with a wooden float to ensure complete compaction and finally finished to a closed even texture using a steel trowel. Screeding rods are useful to maintain a minimum compacted thickness of 5 mm.

Once mixed, the material must be used within the specified pot life (see under "Typical Properties"). After this time, any unused material will have stiffened and should be discarded.

Expansion joints

Expansion joints in the existing substrate should be continued through the Nitoflor TF5000 topping, and filled to the required level with a suitable sealant from the Fosroc range incorporating the appropriate movement accommodation factor (MAF).

Coving

Nitoflor TF5000 can be used to form a perimeter edge coving. Skilled applicators can also form stairs and nosings.

Sealing

Although Nitoflor TF5000 is impervious at 5mm thick, in constantly wet operation areas or where a high degree of cleanliness is required, the Nitoflor TF5000 may be sealed with either Nitoflor FC130 or Nitoflor FC140. The Nitoflor TF5000 must have reached initial cure and high spots such as trowel marks rubbed down.

Cleaning

All tools and equipment should be cleaned with suitable solvent immediately after use.

Limitations

- Nitoflor TF5000 should not be applied on to surfaces known to suffer or are likely to suffer from rising damp conditions or having a relative humidity of greater than 80% as measured in accordance with BS 8203 Appendix A or by a Vaisala thermohygrometer type HMI 31.
- In areas where significant thermal shock is likely to occur, please consult Fosroc for advice.
- Nitoflor TF5000 should not be applied to asphalt, unmodified sand/cement screeds, PVC tiles or sheet. For information on the suitability of other substrates, consult Fosroc for advice.
- Nitoflor TF5000 should not be installed at temperatures below 10°C.

Estimating

Packaging

Nitoflor TF5000 is supplied in packs containing pre-weighed components –

Base + Hardener : 3.3 kg

Aggregate : 25 kg

Total : 28.35kg

Nitoprime 25 : 5 kg packs

Nitoprime 31 : 5 kg packs

In addition, 1 set of 350g colour pot is required per set

Coverage

Nitoflor TF5000 : 2.6 m²/pack @ 5mm thickness (approximately)

Nitoprime 25 : 5 m² per kg

Nitoprime 31 : 5 m² per kg

The coverage figures given are theoretical - due to wastage factors and the variety and nature of possible substrate, practical coverage figures will be reduced. Typically, an additional 10% should be allowed for surface irregularities and wastage although this will vary with site conditions.

Note: In accordance with Commercial or Health & Safety requirements packaging detail may alter. Please contact Fosroc detail.



Nitoflor TF5000

Storage

Shelf life

All products have a shelf life of 12 months if kept in a dry store in the original, unopened packs.

Storage Conditions

Store in dry conditions between 5°C and 30°C, away from sources of heat and naked flames, in the original, unopened packs. If stored at high temperatures the shelf life may be reduced.

Precautions

Health and safety

Nitoflor TF5000, Nitoprime 25 and Nitoprime 31 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. 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**.

For further information see relevant Material Safety Data Sheet.

Fire

Nitoflor TF5000 and Nitoprime 31 are non-flammable.

Nitoprime 25 is flammable. Keep away from sources of ignition.

No smoking. In the event of fire, extinguish with CO2 or foam.

Do not use a water jet.

Flash points

Nitoprime 25	: 59°C
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Disposal

Spillages of component products should be absorbed on to earth, sand or other inert material and transferred to a suitable vessel. Disposal of such spillages or empty packaging should be in accordance with local waste disposal regulations.

For further information, refer to Material Safety Data Sheet.

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 are suitable for use in the food and drinks industry, the pharmaceutical industry and in areas subjected to heavy industrial use. For 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 are available. This includes joint sealants, waterstops, waterproofing membranes and specialised products for the repair and refurbishment of damaged reinforced concrete. For further information, please contact Fosroc.

Nitoflor is the trademark of Fosroc International Limited.

† See separate data sheet



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Important note

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