

Fosroc Nitoflor TF5000



constructive solutions

Heavy duty 5mm thick, chemical and abrasion resistant epoxy floor screed

Uses

Nitoflor TF5000 provides an extremely high strength floor topping with exceptional resistance to attack from mechanical wear and chemical spillage. In addition to being impervious its use facilitates a safe non-slip finish for personnel and vehicular traffic, and is ideally suited for :

- Heavy engineering plants and steelworks.
- Electricity substations and battery rooms.
- Chemical handling and process areas.
- Oil refineries and plating factories.
- Dairies and soft drinks factories.

In areas where high degrees of cleanliness are required, the surface of Nitoflor TF5000 can be sealed with either Nitoflor FC150*†, Nitoflor FC140*† or Nitoflor FC130*† epoxy resin floor coatings.

Advantages

- Long service life - exceptional resistance to abrasion and a wide range of chemicals.
- Safe working environment - good gripping surface to both vehicular and pedestrian traffic.
- Minimal disruption - 5mm thickness causes little interference with existing levels.
- Established track record - successfully proven in a wide variety of aggressive locations.
- Versatile application - food grade and other special versions available to match individual requirements.

Standards compliance

Tested to a variety of international standards : ASTM C579 for compressive strength, BS 6319 for tensile and flexural strength and ASTM D-4060 for abrasion resistance.

Specification

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 D 4060, having a maximum weight loss of 0.77 mg/1000 cycles.

Description

Nitoflor TF5000 is a solvent-free combination of epoxy resin, modified amine hardener, filled with specially graded inert aggregates. It is supplied in pre-weighed units of four part system including colour pack, which are ready for on-site mixing and application.

Nitoflor TF5000 is laid by trowel as a durable, chemically resistant screed approximately 5 mm thick. The complete system also includes Nitoprime 25*, a two-pack epoxy resin primer. The finished, cured floor has a slightly granular texture.

Properties

Mechanical characteristics

Compressive strength @ 7 days	:	85 N/mm ²
		(ASTM C579)

Flexural strength @ 7 days	:	28 N/mm ²
		(BS 6319, Pt 3)

Tensile strength @ 7 days	:	16 N/mm ²
		(BS 6319, Pt 7)

Abrasion resistance (ASTM D4060)	:	0.77 g/1000 cycles
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Bond strength to concrete	:	> cohesive strength of the concrete
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Indentation characteristics Modified US MIL-D-3134	:	No indentation from a height of 2.4 m
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Curing characteristics at	:	20°C 30°C
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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

Reaction to fire	:	Class A
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(for Flame Spread Index(FSI) and Smoke Development Index(SDI))

VOC	:	<0.01 g/l
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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.

Acids (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.

Instructions for use

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 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 ½kg/m² of Antislip Grain No.3 to provide a key for the application of Nitoflor TF5000. Ensure that the primer is touch dry prior to commencing application.

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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 hardner into the mix and stir for further 30 seconds.

Gradually empty the filler (aggregate) into the mix of base, colour pack and hardner 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 5mm.

Once mixed, the material must be used within the specified pot life (see under "**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 FC150, Nitoflor FC140 or Nitoflor FC130. 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 Fosroc Solvent 102* immediately after use.

Technical support

Fosroc offers a comprehensive range of high performance, high quality repair, maintenance and construction products. Fosroc also offers technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

Limitations

- Nitoflor TF5000 should not be applied on to surfaces which are known to or likely to suffer from rising damp or have a relative humidity greater than 75% as measured in accordance with BS 8203 Appendix A or by Hammond concrete/mortar moisture tester type COCO.
- Fosroc does not recommend acid etching as a method of floor preparation. If used, the method should be approved by the project consultant.
- Consult your local Fosroc technical department where application or service temperatures are outside the range of 5°C - 40°C.
- Generally not suitable for external use. Contact local Fosroc office for further details.

Estimating

Supply

Nitoflor TF5000	:	12 litre packs (Including colour pack)
Antislip Grain No. 3	:	25 kg bags
Nitoprime 25	:	1 and 4 litre packs
Fosroc Solvent 102	:	5 litre Packs

Coverage

Nitoflor TF5000	:	2.4 m ² /pack at 5mm thickness (approximately)
Nitoprime 25	:	4.0 - 5.0 m ² per litre

Note: The above coverage rates are given for guidance only as actual quantities used will vary depending upon the nature of substrate and conditions on site.

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Storage

Shelf life

Nitoflor TF5000 and Nitoprime 25 have a shelf life of 12 months when stored in a dry place below 35°C in their original, unopened packs.

Storage conditions

Store under warehouse conditions below 35°C in the original, unopened packs. If stored at high temperature and/or high humidity conditions, the shelf life will be reduced.

Precautions

Health and safety

Nitoflor TF5000, Nitoprime 25 and Fosroc Solvent 102 should not come in contact with skin and eyes or be swallowed. Avoid prolonged inhalation of solvent vapours.

Some people are sensitive to epoxy resins, hardeners and solvents. Gloves, goggles and a barrier cream such as Kerodex Antisolvent or Rozalex Antipaint should be used. Ensure adequate ventilation and if working in enclosed areas use suitable breathing apparatus.

If mixed resin comes into contact with the skin, it must be removed before it hardens with a resin removing cream such as Kerocleanse Standard Grade Skin Cleanser or Rozaklens Industrial Skin Cleanser, followed by washing with soap and water. **Do not** use solvent.

Fosroc Solvent 102 and should be washed from the skin immediately with soap and water.

Should accidental eye contamination occur with any of the above products, wash well with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately. **Do not induce vomiting.**

* Denotes the trademark of Fosroc International Limited

† See separate data sheet



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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.

Fire

Nitoprime 25 and Fosroc Solvent 102 are flammable. Do not expose to naked flames or other sources of ignition. No smoking during use. Containers should be tightly sealed when not in use. In the event of a fire, extinguish with a CO₂ or foam type extinguisher.

Flash points

Nitoprime 25	:	39°C
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Fosroc Solvent 102	:	33°C
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Also refer to the Material Safety Data Sheet.

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.

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