Fosroc Nitoflor RT6000 UT

constructive solutions

Resin rich, trowel applied heavy duty polyurethane floor screed

Description

Fosroc Nitoflor RT6000 UT is a heavy duty, trowel applied polyurethane floor screed designed with high durability to resist impact, abrasion, chemical and thermal shock resistance. Its lightly textured finish makes the product ideal for both wet and dry processing environments.
Fosroc Nitoflor RT6000 UT is a four-component product, comprising base, hardener, coloured filler and aggregate.

Appearance

Seamless, matt surface with a light slip resistant texture to the finished floor. When first installed, the floor has a uniform coloured surface. However, with general use, aggregate may begin to show through giving a mottled appearance.

Advantages

- Stable to steam cleaning and hot water exposure at a thickness of 9mm
- Very high chemical resistance
- Suitable for cold storage and freezer rooms
- Non tainting
- Seamless
- High abrasion resistance
- Slip resistant

Properties

Thickness 6 – 9 mm. Nitoflor RT6000 UT is water-based and non-tainting.

Substrates

Concrete, polymer modified screeds, grano-concrete.

Temperature Resistance

At 9mm thickness with a sound substrate, Nitoflor RT6000 UT is: suitable for freezer rooms; resistant to steam-cleaning process at 120ºC using a moving lance (with the floor at normal ambient temperature).

Typical Properties, 28 days at 20ºC

Compressive Strength, BS6319-2, MPa	:	48
Tensile Strength, BS6319-7, MPa	:	4.5
Flexural Strength, BS6319-3, MPa	:	12
Density (ASTM D792), kg/ m^3	:	2700
Dynamic elastic modulus (ASTM C597), GPa	:	17
Flexural Modulus (ASTM C580), MPa	:	2940
Taber abrasion resistance (ASTM D4060)		
H22 wheels, mg/1000 cycles	:	1260
CS17 wheels, mg/1000 cycles	:	232
Water absorption (ASTM C413) %	:	0.045
Thermal Expansion Coefficient (BS EN1770), m/m.ºC	:	3.8×10^{-5}
Impact Resistance (ASTM D2794), N.m 9mm thick	:	21
Moisture vapour permeability ASTM E96 g/m2/24hrs, 6 mm	:	2.2
9 mm	:	3.4
Thermal conductivity (Thermtest TPS method), W/m.K	:	1.5
Pull Off Adhesion	:	> Concrete
Non-taint property (IS-8639, 48 hours)	:	Pass
Service Temperature 6mm	:	- 20ºC to +95ºC
Service Temperature 9mm	:	- 45ºC to +120ºC
BS 8204-6 6 mm	:	Type 7 Floor (heavy duty)
BS 8204-6 9 mm	:	Type 8 Floor (very heavy duty)
Application temperature range	:	15 - 30 ºC

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Chemical Resistance

Nitoflor RT6000 UT is resistant to a wide range of commonly used chemicals in the food, dairy and pharmaceutical industries such as concentrated citric acid (fruits), spirit vinegar (50% acetic acid), lactic acid (dairy products) and common alcohols (methanol & ethanol).
Nitoflor RT6000 UT is also resistant to a wide range of inorganic acids, fuels, hydraulic oils, mineral oils and solvents. Good housekeeping practices should be employed. Please consult Fosroc for further advice.
Some staining or discolouration may occur with some chemicals, depending on dwell time, temperature, type of chemical and degree of housekeeping employed. This does not affect the product service integrity or durability.

Cure Schedule at 30ºC

Working life of full packs *:	
Nitoflor SL3000 UT	15-20 minutes
Nitoflor RT6000 UT	10-15 minutes

* Usable working life of material following mixing and immediate spreading as per the application instructions

Finished floor:	
Cure time to light pedestrian traffic	8 hours
Cure time to light wheeled traffic	24 hours
Cure time to heavy duty traffic	48 hours
Full chemical resistance	7 days

Note : The above cure times are approximate and given as a guide only. These times can vary due to prevailing site conditions.

Application Conditions

Ideal ambient, material and substrate temperature range is 15 - 30ºC to achieve best results. The product components should be stored in a cool area (or warm area in the case of low ambient temperature), using localised forced cooling or heating equipment as appropriate, in order to bring product temperature within the ideal range. The product can be applied outside this ideal temperature range (subject to a minimum of 10ºC and maximum of 34ºC) however the surface finish may be subject to trowel and spike roller marks. In these cases physical properties and durability of the floor are not affected.
The substrate and applied floor must be kept at least 3ºC above the dew point to reduce the risk of condensation or blooming on the surface, from before priming to at least 48 hours after application of Nitoflor RT6000 UT.

Instructions for preparation and use

Nitoflor RT6000 UT should be installed by specialist applicators, who must follow the procedures, laid down in guideline documents such as BS 8024 Part 6:2008 Code of practice – Synthetic Resin Floorings, and the Fosroc Method Statement - PU Cementitious Flooring.

Surface Preparation

Inadequate preparation will lead to loss of adhesion and failure. Grinding or vacuum-contained shot-blasting is generally preferred although planing can be used. Percussive scabbling or acid etching is not recommended. Anchorage grooves should be cut at the edges, day joints, up-stands, drains, doorways and at regular points across the floor, and all debris removed. Grooves cut to a minimum of twice the thickness to be laid, up to a maximum of 18 mm and at least equal in width to the thickness of material to be laid,

New concrete floors

The base should be a minimum of Grade RC30 of BS 8500-2: 2002 and should not contain a water repellent admixture. The surface strength when assessed using a rebound hammer should be above 25 or the surface tensile strength should exceed 1.5 MPa.
All laitance and any surface sealer or curing membrane must be removed by mechanical means such as shot-blasting or grinding to expose the coarse aggregate. After surface preparation, all loose debris and dirt must be removed by vacuum equipment.
For concrete bases in contact with the ground, a damp-proof membrane should have been incorporated into the slab design, in accordance with the requirements of CP102 (Code Of Practice For Protection Of Buildings Against Water From The Ground).

Old concrete floors

All laitance and surface contamination, e.g. oil, paint and rubber, should be removed by mechanical means such as shot-blasting or grinding to expose the coarse aggregate. After surface preparation, all loose debris and dirt should be removed by vacuum equipment. Heavy oil or grease deposits should first be removed either mechanically, by steam cleaning, or by biological treatment, then by high pressure water blasting followed by the application of a penetrating primer. Where oil or grease contamination has been severe or of long duration, none of these methods may prove satisfactory and in these cases removal of the affected base would be necessary.
In existing buildings without a functioning damp-proof membrane, the application of a surface-applied membrane should be considered. Hydrostatic pressure may, under certain circumstances, cause adhesive failure between the flooring and the substrate. Where this is likely to occur, such as in areas where the ground water table is higher than the substrate, and where external tanking has not been applied, pressure relief must be provided e.g. by direct drainage.
A close visual examination should be made to verify cleanliness and soundness. Any weak or suspect areas should be repaired.

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Application Instructions

Priming

Nitoflor SL3000 UT should be applied as a primer/ scratch coat at a coverage rate of up to a nominal 1 mm thickness; actual coverage rate will depend on concrete surface texture and porosity. This scratch coat is designed to prime and seal the floor.

Fosroc Nitoflor SL3000 UT is a three-component product. A forced-action rotary paddle mixer is recommended for mixing the product. Drain the contents of the liquid base and liquid hardener components into a large plastic container and mix briefly. Load the coloured filler component whist mixing, and continue mixing for at least 1 minute, until a lump-free mix is obtained, including a scrape down if necessary.

Immediately discharge and spread the mix over the application area evenly by trowel, ensuring that anchorage grooves are fully wetted out. The scratch coat should be allowed to cure for 12 - 48 hours at 20ºC before applying Nitoflor RT6000 UT. If the scratch coat has been allowed to cure for >48 hours then the surface must be mechanically abraded thoroughly and a fresh layer of scratch coat applied.

If pin-holing is evident in the scratch coat, indicating that air is rising from the substrate, remedial action must be taken. Contact your local Fosroc office for advice. Failure to do so may result in increased risk of pin-holing of the surface topping.

Application of Nitoflor RT6000 UT

Fosroc Nitoflor RT6000 UT is a four component product. A rotary drum or forced action mixer is required. Drain the contents of the liquid base and liquid hardener components into the mixer container and mix for 1 to 1.5 minutes. Slowly load the two other components, coloured filler and aggregate whist mixing, and continue mixing for at least 1 minute, until a lump-free mix is obtained, including a scrape down if necessary.

Apply to primed areas to the required thickness using a screed box, rake or steel float. When using a screed box or rake ensure allowances are made for additional compaction whilst finishing with a steel trowel. Ensure that anchorage grooves are fully wetted out with material. The cured product should be protected from other trades using Kraft paper or similar breathable material. Polythene should not be used. Protect the installed floor from damp, condensation and water for at least 4 days.

Estimating

Supply

Nitoflor SL3000 UT	20.25 kg packs
Nitoflor RT6000 UT	Consists of: Nitoflor SL 3000 UT Part A (3kg) Nitoflor SL 3000 UT Part B (3kg) Nitoflor SL 3000 UT Filler (14.25kg) Nitoflor RT 6000 UT Aggregate (21.5kg) Total pack size 41.75 kg packs

Coverage

Nitoflor SL3000 UT (primer/ scratch coat)	Coverage appropriate to texture and porosity of floor Nominal 10 m^2/pack
Nitoflor RT6000 UT	2.6 m^2/pack at 6 mm 1.75 m^2/pack at 9 mm

Note : Coverage figures given are theoretical. Actual site practical coverage figures may vary, due to wastage factors and the type and condition of the substrate.

Colours

Fosroc Nitoflor RT6000 UT is available in a range of standard Fosroc colours. Fosroc Nitoflor RT6000 UT is not colour fast and may yellow over time. The rate of change will depend on UV light and heat levels and cannot be predicted. This will be more pronounced with lighter colours and blue shades and does not compromise the product's performance or chemical resistance characteristics.

Cleaning

Regular cleaning is essential to enhance and maintain the life expectancy, slip resistance and appearance of the floor. Fosroc Nitoflor RT6000 UT can be easily cleaned using industry standard cleaning chemicals and techniques. Consult your cleaning chemical and equipment supplier for more information.

When applied at 9mm thickness, Fosroc Nitoflor RT6000 UT is steam cleanable using a moving lance.

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Health and Safety

Fosroc Nitoflor SL3000 UT and Nitoflor RT6000 UT must not come into contact with the skin and eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours.
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 provides 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. Refer to Product Safety Data Sheets for further information

Fire

Nitoflor SL3000 UT and Fosroc Nitoflor RT6000 UT are non-flammable.

Storage

Fosroc Nitoflor SL3000 UT and Fosroc Nitoflor RT6000 UT have a shelf life of 12 months if stored off the ground in unopened packs in a dry store under cover at temperature between 10ºC and 30ºC. Storage outside this range, or repeated fluctuations in storage temperature, can reduce the storage life. Protect from frost.

Limitations

Do not proceed with application if atmospheric relative humidity is, or is anticipated to be, >75% or if the surface temperature is <5ºC above the dew point.
Application should not commence when the substrate temperature or the ambient temperature is, or is anticipated to be, <5ºC during the application or within the tack-free period.

Application can take place outside the ideal temperature range of 15 - 30ºC, subject to a minimum of 10ºC and a maximum of 34ºC, however the surface finish may be subject to e.g. trowel and/or spike roller marks.
The design strength of concrete surfaces must be a minimum of 25 MPa compressive strength at 28 days.

The manufacture of Fosroc Nitoflor RT6000 UT is a batch process and despite close manufacturing tolerances, colour variation may occur between batches.

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Technical Advice

For further information on this or any other Fosroc product, please contact your local Fosroc office.

Note

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