Fosroc®
Nitoflor® PU600

High performance, self-levelling, polyurethane cement industrial floor topping

Uses

Nitoflor PU600 has been designed to produce flooring for applications that require high resistance to mechanical stress and chemical attack, that are subject to extreme temperatures and need to be applied within a limited timeframe. Typical uses for the system are in wet processing zones in chemical processing plants and food preparation and manufacturing areas.

Advantages

- Handles extreme temperatures
- High chemical resistance
- Hard wearing – abrasion resistant
- Low odour and non-tainting during application
- Fast turnaround times
- Anti-microbial properties
- Very good slip resistance properties with aggregates broadcast
- HACCP certified for use in food handling areas
- RCS (Respirable Crystalline Silica) Hazard Free*

Standards compliance

AS/ISO 9239.1-2003 Reaction to Fire Tests for Floorings - AWTA Test Report 22-001880:

Critical Heat Flux (CHF): ≥11.0 kW/m²
Smoke Value: 28 %.min

HACCP certification for SSZ (Splash or Spill Zone) - items are suitable for use in food handling areas such as kitchens, production areas.

Copies of the certification are available from the Fosroc website.

Description

Nitoflor PU600 produces a floor topping that, once is coated with Nitoflor PU200, provides a hard-wearing, chemically resistant floor that can handle extreme temperatures. The finished floor also has anti-microbial properties which reduce the growth of bacteria and mould.

Both Nitoflor PU200 and PU600 are supplied as coloured finishes using Nitoflor PU Colour Pigments.

Nitoflor PU600 is supplied in 18.1kg kits and 72.4kg kits

*Nitoflor PU600 Fillers are classified not hazardous for RCS in accordance with Australian Inventory of Industrial Chemicals; contains <0.1% RCS.

Design Criteria

Nitoflor PU Cement flooring consists of Nitoflor PU600 (topping), a slip-resistant aggregate (optional) and Nitoflor PU200 (top coat). The topping is designed to be applied at two different thicknesses. The depth of the topping is determined by physical site parameters and the degree of temperature resistance required by the floor (see table for temperature resistance).

Properties

The following results were obtained in controlled laboratory conditions at 20°C and 50% relative humidity.

Bond Strength:	Greater than cohesive strength of 25MPa concrete. >1.5 MPa (EN1542)
Compressive Strength:	> 50 MPa (AS1478)
Flexural Strength:	23.1MPa (AS1012.11)
Hardness:	80 Shore D (ASTM D2240)
Coefficient of thermal expansion:	3.5 x 10^{-5} / °C (ASTM C351)
Water Absorption:	0.8% @ 80°C (ASTM D570)
Impact Resistance:	1.8kg / 110cm (ASTM D2794)
Density:	1.735g/cm³
VOC Content:	25g / litre (ASTM D3960)
Chemical Resistance:	Good resistance to wide spectrum of organic and inorganic acids, alkalis, amines, salts and solvents. Check resistance including dilution percentage and temperature with your local Fosroc sales office
Light traffic cure time:	36 hours @ 10°C; 24 hours @ 20°C; 12 hours @ 30°C
Full traffic cure time:	72 hours @ 10°C; 48 hours @ 20°C; 24 hours @ 30°C
Full Chemical cure:	12 days @ 10°C; 7 days @ 20°C; 5 days @ 30°C

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Slip Rating - AS4586

Basecoat	Broadcast Aggregate	Topcoat	Dry Floor Friction	Wet Pendulum	Wet Barefoot Ramp	Oil Wet Ramp
Nitoflor PU600	Nil	Nitoflor PU200	D1	P4	-	-
Nitoflor PU600	Nitoflor Anti-Slip Grains 01	Nitoflor PU200	D1	P5	C	R11
Nitoflor PU600	Nitoflor Anti-Slip Grains 21	Nitoflor PU200	D1	P5	C	R13

Temperature Resistance

Location / Properties	Dry Process (Smooth Flooring)	Dry Process (Slip Resitance)	Chemical Storage / Loading & Unloading	Wet Process / Cold Rooms
Flooring usage category	General (Smooth topping)	General (Slip Resistance[1])	Medium Duty	Heavy Duty
Total application thickness	3.5mm	4 - 5mm	5 - 6mm	8 - 9mm
Nitoflor PU600 thickness	3mm	3 - 4mm	4 - 5mm	6mm
Nitoflor PU200 application	Single coat	Single coat	Single coat	Two coats
Service temperature (fully cured floor)	-15°C to 65°C	-15°C to 65°C	-20°C to 90°C	-25°C to 100°C
Max.cleaning temperature	80°C	80°C	90°C	100°C
Thermal Shock range[2]	-15°C to 80°C	-15°C to 80°C	-20°C to 90°C	-25°C to 100°C

Note 1: The addition of a slip resistant aggregate will be dependant on the requirements of the application area.
Note 2: Nitoflor PU200 as a stand-alone product will have a thermal shock range of 0°C to 80°C.

Light Reflectance Value (LRV): BS 8493:2008

Nitoflor PU600 Bright Blue:	16.92%
Nitoflor PU600 Curtain Call:	12.50%
Nitoflor PU600 Jade:	12.89%
Nitoflor PU600 Oatmeal:	46.41%
Nitoflor PU600 Pipeline Grey:	28.08%
Nitoflor PU600 Red Oxide:	7.94%
Nitoflor PU600 Sunflower:	32.97%

Application Instructions

Nitoflor PU600 should only be applied by specialist contractors, recognised by Fosroc who have been trained in the correct installation procedures.

A detailed Application Guide for Nitoflor PU600 is available from the Fosroc website.

Preparation

Nitoflor PU600 should be applied within the ambient temperature range of 10 to 30°C. Refer to Fosroc for advice on application outside of this temperature range.

Concrete substrate should be a minimum strength of 25MPa, free from coatings and other contaminants.

The substrate should be dry to less than 95% relative humidity, have an effective damp-proof membrane installed and be free from rising damp and ground water pressure. Concrete should ideally be 28 days old, however Nitoflor PU600 may be applied to concrete as early as 7 days old providing high strength concrete is being used and the curing / drying conditions are suitable. Please contact Fosroc for advice under these conditions.

All cementitious laitance to be removed to expose sound concrete beneath and provide a clean, dry, dust free, open-textured surface via totally enclosed shot blasting and/or scarification.

Floor areas beneath air-conditioning units, ducting etc. and around perimeter should be prepared using hand held preparation equipment. Ensure surrounding areas are protected from any potential dust generated during this preparation. Any rough or uneven areas to be smoothed with an epoxy scratch coat, of Nitomortar 903 with Nitomortar F4 fillers.

All joints in the substrate must be expressed through Nitoflor PU600. This can be achieved using removable forms or by cutting in joints after the Nitoflor PU600 has cured sufficiently.

These joints can then be sealed at the top using Nitoseal PU400 or similar joint sealant.

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Anchorage groove details

Anchorage grooves must be formed in the concrete substrate along all free-edges, bay joints, drains, at doorways, around columns and machine plinths, etc and at regular centres across the floor. These anchorage grooves are formed using a diamond cutting wheel and should be width and depth equal to twice the topping thickness. It is essential anchorage grooves are correctly placed to aid in the distribution of mechanical stress from temperature changes and shrinkage.

The anchoring grooves are typically cut into the floor 75 to 100mm back from the finishing edge or detail it is being placed around and the Nitoflor PU600 allowed to flow into the groove to form an anchor.

Priming

A primer is generally not required, but may be required on very porous substrates. If required, Nitoflor PU200 or Nitoflor PU600 as a scratch coat (1.0 to 1.5mm thickness) are the recommended primer options. The primer must be allowed to become tack free before applying the Nitoflor PU600 system.

Nitoflor PU600 topping - mixing 18.1kg kits

IMPORTANT: When applying at ambient temperature 10^{O}C or below, all components should be pre-conditioned to approximately 20°C to 25°C for 24 hours prior to application.

Pack components are pre-weighed for optimum performance. Never split or proportion packs.

Vigorously shake Nitoflor PU600/PU200 Part A Base 2.6kg to redisperse any settlement. Pour the Base component into a suitable 20 litre mixing container.

Agitate the 300g Nitoflor PU Colour Pigment in its individual container. Add to the Part A Base and mix using a heavy duty mixer fitted with a helical mixer head until uniform colour is achieved.

Add the Nitoflor PU600/PU200 Part B Hardener 2.8kg into the mixture and mix for 2 minutes, taking care not to entrain air.

Add 1 x 12.4kg Nitoflor PU600 Part C Fillers and continue to mix until the mixture is uniform.

Nitoflor PU600 topping - mixing 72.4kg kits

IMPORTANT: When applying at ambient temperature 10^{O}C or below, all components should be pre-conditioned to approximately 20°C to 25°C for 24 hours prior to application.

Pack components are pre-weighed for optimum performance. Never split or proportion packs.

Using a mixer and spiral paddle, stir the Nitoflor PU600 Part A Base 10.4kg to redisperse any settlement. Stir the 1.2kg Nitoflor PU Colour Pigment in its individual container. Add to the Part A Base and mix until uniform colour is achieved.

Pour the Part A Base component into a suitable mixing machine. The mixing machine should typically have around 80 - 100 litres mixing capacilty. “Hippo” type mixers have been used to successfully mix the product.

Add the Nitoflor PU600/PU200 Part B Hardener 11.2kg into the mixture and mix for 2 minutes, taking care not to entrain air.

Slowly add 4 x 12.4kg Nitoflor PU600 Part C Fillers and continue to mix until the mixture is uniform.

Nitoflor PU600 topping - application

Please note this material has a pot life of approximately 15 minutes at 25°C.

Immediately after mixing, spread the Nitoflor PU600 using a steel trowel or gauging rake onto the primed floor, to the required thickness.

Immediately, roll with a spiked roller to release any entrapped air. Do not roll the surface after 8 minutes after application, dependent on temperature. Late spike rolling will cause surface texture.

After applying and spike rolling the Nitoflor PU600, promptly broadcast to full cover the slip resistant aggregate ensuring an even finish is achieved.

Allow to cure. Typically a minimum of 5 hours @ 25°C.

Nitoflor PU200 top coat - preparation

Fully remove any loose aggregate by vacuum and sweeping prior to application of top coat.

Nitoflor PU200 top coat - mixing

Pack components are pre-weighed for optimum performance. Never split or proportion packs.

Stir Nitoflor PU600/PU200 Part A Base 2.6kg to redisperse any settlement.

Pour into a suitable large container and add the Nitoflor PU200 Part C Fillers while mixing with a suitable mixer. Add one 300g Nitoflor PU Colour Pigment and continue to mix until a uniform colour is achieved. Add Nitoflor PU600/PU200 Part B Hardener 2.8kg and mix for a further 2 minutes.

Top coat - application

Please note this material has a pot life of approximately 15 minutes at 25°C. Pot life will be reduced if product is mixed and left in original container. To extend working life, pour product on to the prepared floor as soon as possible after mixing.

Do not apply the product out of a roller tray. Apply the mixed Nitoflor PU200 coat by squeegee and roller to fully seal the surface. Ensure the coating is applied evenly taking care that the slip resistant aggregate is fully exposed, avoid overfilling the aggregate.

Coving

Coving can be formed with a mortar produced from Nitomortar 903 and fillers. Vertical surfaces must be primed with unfilled Nitomortar 903. Whilst the primer is wet or tacky, form the required cove using Nitomortar 903 with the required amount of fillers. Allow to cure. Lightly sand the surface to remove any roughness and apply a coat of Nitoflor PU200 by brush/roller. Allow to cure.

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Cleaning
All tools and equipment should be cleaned immediately after use with Fosroc Solvent 10. Hardened material can only be removed mechanically.

Maintenance
Clean regularly using a single or double headed rotary scrubber drier in conjunction with a mildly alkaline detergent.

Limitations
Note: To ensure a uniform colour, use only components with identical batch numbers in the one application area or contact Fosroc for advice.

Nitoflor PU600 and Nitoflor PU200 are designed as industrial flooring products and not colour fast therefore may change colour over time (exhibit a yellowing effect). Colour change depends on the UV light and heat levels present and hence the rate of change cannot be predicted. This is more noticeable in light colours and blues, but does not compromise the product's perfomance or chemical resistance.

Nitoflor PU600 and Nitoflor PU200 are not suitable for deep freezing or steam-only cleaning (cleaning at 100°C should be steam and hot water blend).

Supply

Nitoflor PU600 - 18.1kg kit (10.5 litres mixed)	
Nitoflor PU600/PU200 Part A Base 2.6kg:	FC605204-2.6KG
Nitoflor PU600/PU200 Part B Hardener 2.8kg:	FC605201-2.80KG
Nitoflor PU600 Part C Fillers 12.4kg:	FC605202-12.4KG
Nitoflor PU200 Part C Fillers 3.8kg:	FC605192-3.8KG
Nitoflor PU Colour Pigment 0.3kg	
Nitoflor PU Colour N43 Pipeline Grey 300g:	FC605227-0.3KG
Nitoflor PU Colour Curtain Call 300g:	FC605228-0.3KG
Nitoflor PU Colour G21 Jade 300g:	FC605225-0.3KG
Nitoflor PU Colour R63 Red Oxide 300g:	FC605226-0.3KG
Nitoflor PU Colour B23 Bright Blue 300g:	FC605229-0.3KG
Nitoflor PU Colour Y54 Oatmeal 300g:	FC605230-0.3KG
Nitoflor PU Colour Y15 Sunflower 300g:	FC605231-0.3KG

Nitoflor PU600 - 72.4kg kit (41.85 litres mixed)	
Nitoflor PU600 Part A Base 10.4kg:	FC605200-10.4KG
Nitoflor PU600 Part B Hardener 11.2kg:	FC605201-11.2KG
Nitoflor PU600 Part C Fillers 12.4kg: (x4)	FC605202-12.4KG
Nitoflor PU Colour Pigment 1.2kg	
Nitoflor PU Colour N43 Pipeline Grey 1.2kg:	FC605227-1.2KG
Nitoflor PU Colour Curtain Call 1.2kg:	FC605228-1.2KG
Nitoflor PU Colour G21 Jade 1.2kg:	FC605225-1.2KG
Nitoflor PU Colour R63 Red Oxide 1.2kg:	FC605226-1.2KG
Nitoflor PU Colour B23 Bright Blue 1.2kg:	FC605229-1.2KG
Nitoflor PU Colour Y54 Oatmeal 1.2kg:	FC605230-1.2KG
Nitoflor PU Colour Y15 Sunflower 1.2kg:	FC605231-1.2KG

Nitofllor Anti Slip Grains	
Nitoflor Anti-Slip Grains 01 20kg:	FC611080-20kg
Nitoflor Anti-Slip Grains 21 20kg:	FC611082-20kg

Coverage
At 3 to 4mm thick, each 18.1kg pack of Nitoflor PU600 will cover approximately 3.5m² (5.2kg / m²).

At 3 to 4mm thick, each 72.4kg pack of Nitoflor PU600 will cover approximately 14m² (5.2kg / m²).

At 5 to 6mm thick, each 18.1kg pack of Nitoflor PU600 will cover approximately 2.1m² (8.8kg / m²).

At 5 to 6mm thick, each 72.4kg pack of Nitoflor PU600 will cover approximately 8.4m² (8.8kg / m²).

Nitoflor Anti-Slip Grains 01 should be applied at 3 to 4kg / m².

Nitoflor PU200 should be applied at 0.5mm thick - each 9.5kg kit covering approximately 13.1m² (one coat).

The coverage figures given are theoretical - due to wastage factors and the variety and nature of possible substrates, practical coverage figures will be reduced.

Storage

Nitoflor PU600 components should be stored in cool, dry conditions, in original, unopened packs.

Nitoflor PU600/PU200 Part B Hardener has a shelf life of 18 months from date of manufacture.

Nitoflor PU600 Part C Fillers has a shelf life of 24 months from date of manufacture.

Store between 5 and 30°C. If stored at high temperatures and/or high humidity conditions the shelf life may be reduced.

Important notice

A Safety Data Sheet (SDS) is available from the Fosroc website. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.

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