

## Highly chemical resistant, hybrid polyurethane based, resin floor coating

### Uses

Fosroc Nitoflor FC400 UH provides a hard wearing, chemical and abrasion resistant floor finish. Available in dark colours only as the product may Yellow when exposed to sunlight. It is ideally suited for use in areas where a high degree of resistance to chemicals, oils and grease is required such as :

- Cold rooms with temperatures down to -5°C
- Dairies
- Soft drinks production facilities
- Pharmaceutical plants
- Chemical manufacturing plants
- Waste water treatment facilities
- Laboratories
- Cafeteria

### Advantages

- Durable, low maintenance costs.
- Proven against a wide range of industrial chemicals.
- Solvent free - no odour during application. Suitable for process shut-down work
- Slip resistant - different textures available to suit conditions to avoid slipping.
- Liquid applied providing complete protection.

### Description

Fosroc Nitoflor FC400 UH is a solvent free system based on polyurethane resins and curing agents specially selected for their ability to withstand chemical attack. The system consists of pre-weighed base & hardener components and a Nitoflor colour pack, all of which contain reactive elements that are essential to the installation of the system.

A slip resistant texture can be provided by the use of one of a range of Nitoflor Antislip Grains which have been carefully graded to ensure an even texture.

### Specification

The polyurethane resin floor coating shall be Fosroc Nitoflor FC400 UH from Fosroc. The total dry film thickness of the coating shall be a minimum of 400 microns. The floor shall be prepared and the coating mixed and applied in accordance with the manufacturer's current data sheet.

### Design criteria

Fosroc Nitoflor FC400 UH is applied as a floor coating system comprising of two top coats (depending on substrate conditions a primer may be required), each coat to be a minimum of 200 microns thick. To provide a slip resistant texture, the first top coat can be dressed with Nitoflor Antislip Grains\*.

### Properties

The following values were obtained when tested at 25°C and 35°C.

	@ 25°C	@ 35°C
Pot life	: 40 mins	20 mins
Cure time	: 24 hours	18 hours
Maximum time between coats	: 36 hours	15 hours
UV resistance	: UV stable though some findings may occur	
Resistance to microorganisms	: Resistant	
Specific gravity	: 1.5 - 1.6 g/cc	
Light traffic use after	: 24 hours	18 hours
Full traffic use after	: 48 hours	24 hours
Resistance to chemical spillage	: 7 days	5 days
Water absorption (ASTM C 413:1996)	: 0.06%	
Shore D Hardness (ASTM D 2240 : 1996)	: 75	
Bond Strength (ASTM D4541)	: 2.0 N/mm <sup>2</sup> Concrete failure	
Freeze Thaw** Resistance (@ -5°C min temp)	: No failure, cracking or debonding from concrete substrate	
Thermal Shock Resistance (@ -5°C min temp)(ASTM C884M)	: Passes	
Adhesion after thermal shock testing (ASTM D4541)	: 2.5 N/mm <sup>2</sup>	Concrete failure

Note: \*\* @ 400 micron dry film thickness

### Chemical resistance

Fully cured Fosroc Nitoflor FC400 UH samples have been tested in a wide range of aggressive chemicals commonly found in industrial environments. Tests were performed in accordance to ASTM D 543 standards over 168 hours (7 days) at 23°C±2)

### Acids

Oleic Acid 100%	: Resistant
Lactic acid 20%	: Resistant
Citric acid 50%	: Resistant
Acetic acid 10%	: Resistant

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Hydrochloric acid Conc.	:	Resistant
Sulphuric acid 70%	:	Resistant
Nitric acid 30%	:	Resistant
Tartaric acid 50%	:	Resistant

## Alkalis

Sodium hydroxide 50%	:	Resistant
Ammonia (0.880) 33%	:	Resistant
Potassium Hydroxide (50%)	:	Resistant

## Solvents

Petrol	:	Resistant
Engine Oil	:	Resistant
Kerosene	:	Resistant
Butanol	:	Resistant
Skydrol	:	Resistant
Industrial Methylated spirits	:	Resistant

## Others

Saturated sugar solution	:	Resistant
Urea (saturated)	:	Resistant
Bleach 5%	:	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

The long term durability of any resin floor system is determined by the adhesive bond achieved between the flooring material and the substrate. It is most important therefore that substrates are correctly prepared prior to application.

### New concrete floors

These should normally have been placed for at least 28 days and have a moisture content of less than 5%. Floors should be sound and free from contamination such as oil and grease, mortar and paint splashes or curing compound residues. Excessive laitance can be removed by the use of mechanical methods. Dust and other debris should then be removed by vacuum cleaning.

### Old concrete floors

A sound, clean substrate is essential to achieve maximum adhesion. As for new concrete floors dry removal of laitance by use of mechanical methods is preferable. Oil and grease

penetration should be removed by the use of a proprietary chemical degreaser or by hot compressed air treatment.

Any damaged areas or surface irregularities should be repaired using one of the Nitoflor EU\*\* range products.

## Priming

All surfaces treated with Fosroc Nitoflor FC400 UH should be primed with Nitocote Primer Sealer, a solvent free primer designed for maximum absorption and adhesion to the substrate. Add the entire contents of the 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, Nitocote Primer Sealer will be absorbed very quickly leaving characteristic light coloured dry patches. It is recommended that a second priming coat is applied in these areas.

The primer should be left to achieve a tack-free condition before applying the top coat. A second coat of primer may be required if the substrate is excessively porous.

## Mixing the coating

The base and hardener components of Fosroc Nitoflor FC400 UH should be thoroughly stirred before the two are mixed together. The entire contents of the hardener container should be poured into the base container and the two materials mixed thoroughly, then add the colour pot and mix for at least 3 minutes. The use of a heavy-duty slow speed, flameproof or air driven drill fitted with a Mixing Paddle is desirable. Mix these components in the quantities supplied taking care to ensure all containers are scraped clean. Do not add solvent thinners at any time.

## Standard application

The first coat of Fosroc Nitoflor FC400 UH should be applied using a good quality medium haired pile roller, suitable for epoxy application, or squeegee to achieve a continuous coating. Ensure that loose hairs on the roller are removed before use. A minimum film thickness of 200 microns should be applied. This can be increased where specifications demand.

When the base coat has reached initial cure (12 hours @ 20°C or 5 hours at 35°C). The top coat can be applied by medium haired roller, at minimum film thickness of 200 microns. Care should be taken to ensure that a continuous film is achieved.

## Antislip application

If a slip resistant texture is required, the base coat shall be applied as per the standard application, but at a minimum film thickness of 250 microns. The base coat should then be



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dressed with the chosen Nitoflor Antislip Grain. This should be done as soon as possible after laying. The recommended procedure is to completely blind the base coat i.e. apply excess dressing aggregate to completely obliterate the base coating.

Alternatively, the Nitoflor Antislip Grains can be broadcast in a light random dressing to provide a less dense finish.

When the base coat has reached initial cure (12 hours @ 20°C or 5 hours at 35°C), the excess aggregate should be vacuum cleaned from the surface.

The top coat can now be applied by medium haired roller, at a rate of 4.0m<sup>2</sup>/litre. Care should be taken to ensure that a continuous film is achieved and the rough surface, caused by the aggregate, is completely sealed. This top coat must be applied within 36 hours @ 20°C (15 hours @ 35°C) of the application of the first coat.

## Expansion joints

Expansion joints in the existing substrate must be retained and continued through the Fosroc Nitoflor FC400 UH topping. Fosroc have a range of joint sealants specifically designed for flooring, contact local Fosroc office for advice.

## Cleaning

Tools and equipment should be cleaned with Nitoflor Sol immediately after use. Spillages should be absorbed with sand or sawdust and disposed of in accordance with local regulations.

## Limitations

- Fosroc Nitoflor FC400 UH should not be applied on to surfaces known to, or likely to suffer from, rising dampness, potential osmosis problems or have a relative humidity greater than 75% thermohygrometer.
- Fosroc does not recommend acid etching as a method of floor preparation. If used, the method should be approved by the project consultant.
- Fosroc Nitoflor FC400 UH is not a colour fast product. It will undergo colour change on exposure to sunlight. Even sunlight shines through glass doors or windows.
- Certain chemicals may result in loss of gloss or colour change without affecting the protective performance.

## Technical support

Fosroc offers a comprehensive technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedi-

cated specification assistance in locations all over the world.

## Estimating

### Supply

Nitocote Primer Sealer	:	1 and 4 litre packs
Fosroc Nitoflor FC400 UH (Including colour pack)	:	4.5 litre packs
Nitoflor Antislip Grains	:	20 kg bags
Nitoflor Sol	:	5 litre cans

### Standard coverage

Nitocote Primer Sealer	:	4 - 5 m <sup>2</sup> /litre
Fosroc Nitoflor FC400 UH	:	11.25m <sup>2</sup> /pack@400 microns (2coat applica- tion)

### Coverage - Antislip (approx.)

(for medium texture)

Nitocote Primer Sealer	:	4 - 5 m <sup>2</sup> /litre
Fosroc Nitoflor FC400 UH (base coat)	:	4m <sup>2</sup> /litre
Antislip Grain No 2*	:	1.25-3m <sup>2</sup> /kg
Fosroc Nitoflor FC400 UH(top coat)	:	4m <sup>2</sup> /litre
Estimated system thickness (for fine texture)	:	1.5 - 2mm
Nitoprime SP	:	4 - 5 m <sup>2</sup> /litre
Fosroc Nitoflor FC400 UH (base coat)	:	4m <sup>2</sup> /litre
Antislip Grain No 3*	:	1.25 - 3.5m <sup>2</sup> /kg
Fosroc Nitoflor FC400 UH (top coat)	:	4m <sup>2</sup> /litre
Estimated system thickness	:	0.75 - 1.5mm

\* Depending on the type of texture required.

Note: Coverage figures given are theoretical - due to wastage factors and the variety and nature of substrates, practical coverage figures may be reduced, this will vary with site and application conditions.

## Storage

### Shelf life

Fosroc Nitoflor FC400 UH has a shelf life of 12 months when stored in warehouse conditions below 35°C in the original, unopened packs.

### Storage conditions

Store under warehouse conditions, below 35°C in the original, unopened packs. For further information, refer to the Product Material Safety Data Sheet.



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## Cleaning and 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 packing should be in accordance with local waste disposal regulations.

## Precautions

## Health and safety

Fosroc Nitoflor FC400 UH, Nitocote Primer Sealer and Nitoflor Sol 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 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 s followed by washing with soap.

Should accidental eye contamination occur, wash well with

plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately. Do not induce vomiting.

## Fire

Fosroc Nitoflor FC400 UH and Nitocote Primer Sealer are non-flammable. Nitoflor Sol is flammable. Do not expose to naked flames or other source of ignition. No smoking during use. Containers should be tightly sealed when not in use. In the event of a fire, extinguish with CO<sub>2</sub> or foam.

## Flash points

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Nitoflor Sol	:	33°C
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For further information, refer to the product Material Safety Data Sheet.

## Important note :

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation specification or 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 or information given by it.



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