



# Nitoflor Uragard CR400\* (Formerly Uragard CR400)

Highly chemical resistant, hybrid polyurethane based, resin floor coating

### Uses

Nitoflor Uragard CR400 provides a hard wearing, chemical and abrasion resistant floor finish. 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
- Cafeterias

### 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.
- Specially formulated for use in Middle East conditions.

### Description

Nitoflor Uragard CR400 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 Nitoflor UragardCR400 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

Nitoflor Uragard CR400 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
<b>Pot life</b>	: 40 mins	20 mins
<b>Cure time</b>	: 24 hours	18 hours
<b>Maximum time between coats</b>	: 36 hours	15 hours
<b>Light traffic use after</b>	: 24 hours	18 hours
<b>Full traffic use after</b>	: 48 hours	24 hours
<b>Resistance to chemical spillage</b>	: 7 days	5 days
<b>Water absorption (ASTM C 413:1996)</b>	: 0.06%	
<b>Shore D Hardness (ASTM D 2240 : 1996)</b>	: 75	
<b>Bond Strength (ASTM D4541)</b>	: 2.0 N/mm <sup>2</sup>	Concrete failure
<b>Freeze Thaw** Resistance (@ -5°C min temp)</b>	: No failure, cracking or debonding from concrete substrate	
<b>Thermal Shock Resistance (@ -5°C min temp)(ASTM C884M)</b>	: Passes	
<b>Adhesion after thermal shock testing (ASTM D4541)</b>	: 2.5 N/mm <sup>2</sup>	Concrete failure

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

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## Chemical resistance

Fully cured Nitoflor Uragard CR400 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

<b>Oleic Acid 100%</b>	:	Resistant
<b>Lactic acid 20%</b>	:	Resistant
<b>Citric acid 50%</b>	:	Resistant
<b>Acetic acid 10%</b>	:	Resistant
<b>Hydrochloric acid Conc.</b>	:	Resistant
<b>Sulphuric acid 70%</b>	:	Resistant
<b>Nitric acid 30%</b>	:	Resistant
<b>Tartaric acid 50%</b>	:	Resistant

### Alkalis

<b>Sodium hydroxide 50%</b>	:	Resistant
<b>Ammonia (0.880) 33%</b>	:	Resistant
<b>Pottasium Hydroxide (50%)</b>	:	Resistant

### Solvents

<b>Petrol</b>	:	Resistant
<b>Engine Oil</b>	:	Resistant
<b>Kerosene</b>	:	Resistant
<b>Butanol</b>	:	Resistant
<b>Skydrol</b>	:	Resistant
<b>Industrial Methylated spirits</b>	:	Resistant

### Others

<b>Saturated sugar solution</b>	:	Resistant
<b>Urea (saturated)</b>	:	Resistant
<b>Bleach 5%</b>	:	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 laitence 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 laitence 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

The substrate should be primed with Nitoprime SP, mixed in the proportions supplied. Add the entire contents of the hardener can to the base can. When thoroughly mixed, preferably using a slow speed drill and paddle, the primer should be applied in a thin continuous film, using rollers or stiff brushes. Work the primer well into the surface of the concrete taking care to avoid ponding or over application.

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 Nitoflor Uragard CR400 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 Fosroc Mixing Paddle (MR3) 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 Nitocote CR400 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.



# Nitoflor Uragard CR400\*

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 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 Nitoflor Uragard CR400 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 Fosroc Solvent 102\* immediately after use. Spillages should be absorbed with sand or sawdust and disposed of in accordance with local regulations.

## Limitations

- Nitoflor Uragard CR400 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% as measured in accordance with BS 8203 Appendix A, or by a 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.

- In common with all resin materials, some slight shade changes may be experienced over the long term when placed in adverse exposure conditions. Any such change in shade is not regarded as being detrimental to 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 dedicated specification assistance in locations all over the world.

## Estimating

### Supply

<b>Nitoprime SP</b>	:	4 litre packs
<b>Nitoflor Uragard CR400 (Including colour pack)</b>	:	4.5 litre packs
<b>Nitoflor Antislip Grains</b>	:	20 kg bags
<b>Fosroc Solvent 102</b>	:	5 litre cans

### Standard coverage

<b>Nitoprime SP</b>	:	8m <sup>2</sup> /litre
<b>Nitoflor Uragard CR400</b>	:	2.5m <sup>2</sup> /litre (2coat application)

### Coverage - Antislip (approx.)

(for medium texture)

<b>Nitoprime SP</b>	:	8m <sup>2</sup> /litre
<b>Nitoflor Uragard CR400 (base coat)</b>	:	4m <sup>2</sup> /litre
<b>Antislip Grain No 2*</b>	:	1.25-3m <sup>2</sup> /kg
<b>Nitoflor Uragard CR400 (top coat)</b>	:	4m <sup>2</sup> /litre
<b>Estimated system thickness</b>	:	1.5 - 2mm

(for fine texture)

<b>Nitoprime SP</b>	:	8m <sup>2</sup> /litre
<b>Nitoflor Uragard CR400 (base coat)</b>	:	4m <sup>2</sup> /litre
<b>Antislip Grain No 3*</b>	:	1.25 - 3.5m <sup>2</sup> /kg
<b>Nitoflor Uragard CR400 (top coat)</b>	:	4m <sup>2</sup> /litre
<b>Estimated system thickness</b>	:	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.

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## Storage

### Shelf life

Nitoflor Uragard CR400 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.

### 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

Nitoflor Uragard CR400, Nitoprime SP 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.

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

Nitoprime SP and Fosroc Solvent 102 are 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

Nitoprime SP	:	33°C
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Fosroc Solvent 102	:	33°C
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For further information, refer to the product 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.

\* 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 Service

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