

# Nitocote EP403

Damp-tolerant, solvent free epoxy resin coating

## Uses

As a protective coating for concrete and steel. It is particularly useful where concrete surfaces are damp and cannot be dried out. The cured film is corrosion, chemical and abrasion resistant and is suitable for application to:

- Sewage works
- Marine environments
- Basements
- Tunnels

## Advantages

- High build application
- Suitable for use in confined areas
- Can be applied directly to steel and concrete
- Smooth, glossy, easy to clean surface
- Corrosion, chemical and abrasion resistant
- Can be applied to damp surfaces

## Description

Nitocote EP403 is a two packs, solvent free, epoxy resin material. It is supplied in pre-measured quantities ready for site mixing and use. The material cures to provide a smooth, tough and resistant finish. It is available in grey.

## Specification

Corrosion, chemical and abrasion resistant lining

The chemical and abrasion resistant coating shall be Nitocote EP403, a solvent free epoxy, specifically designed for application to damp surfaces and to provide a tough, impermeable and resistant film.

## Design criteria

Nitocote EP403 is designed to be applied in two coats to achieve a minimum total dry film thickness of 400 microns. To achieve the correct protective properties, Nitocote EP403 must be applied on to the substrate at the coverage rates recommended.

## Properties

Test Method	Typical Result
<b>Solids content</b>	: 100%
<b>Pot life</b>	: 30 mins @20°C 10-15 mins @35°C
<b>Bond strength (ASTM D4541)</b>	: >2.00 N/mm <sup>2</sup>
<b>Dynamic crack bridging ability</b>	: Passed in accordance with specification for Protective Coating published by Civil Eng. Dept. Hong Kong
<b>Salt Spray Resistance (BS 1881: Pt 4: 1988)</b>	: Passed
<b>Sea Water Immersion Resistance (BS1881:Pt 124:1988)</b>	: Passed
<b>The fully cured film is resistant to</b>	: Distilled water, Sea water Raw sewage Petrol Xylene Salt (sodium chloride) 25% sodium hydroxide
<b>Water Absorption (ASTM C642)</b>	
after immersion @ 23°C	: Nil
after immersion & boiling	: 0.1%
<b>Resistance to Chloride ion penetration (AASHTO T259 &amp; 260)</b>	: Resistant
<b>Resistance to Sulphate ion penetration (AASHTO T259)</b>	: Resistant
<b>Resistance to CO<sub>2</sub> diffusion (AFTL in-house method)</b>	: Resistant
<b>Resistance to Bacterial growth (AWWA/APHA 20<sup>th</sup> Ed.1998)</b>	: Resistant

The local Fosroc office should be consulted for resistance to specific chemicals.

# Nitocote EP403

## Instructions for use

### Preparation

#### Concrete surfaces

All surfaces must be smooth, sound and free from debris, loose or flaking material and areas of standing water. Surfaces must be free from contamination such as oil, grease, dust, loose particles and organic growth. Concrete surfaces must be fully cured, laitance free and free from any traces of shutter release oils and curing compounds.

All surfaces should then be grit blasted to remove any foreign matter, and provide a suitable key for Nitocote EP403.

All blow holes and imperfections should be filled with Nitomortar FC. Consult the local data sheet for pot life and overcoating time.

#### Steel surfaces

All surfaces should be grit blasted to meet the requirements of BS 4232, First Quality. The lining work should be programmed so that newly cleaned steel is coated as soon as possible before the formation of rust or scale.

### Priming

Priming is not normally required provided the substrate is sound, untreated and good quality non porous concrete. If any doubts exist of the quality of the concrete, or if it is porous it should be primed with Nitoprime SP. Contact the local Fosroc office for advice.

Nitoprime SP should be mixed in the proportions supplied. Add the entire contents of the hardener can into 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 contents of the base can should be stirred thoroughly to disperse any settlement. The entire contents of the hardener can should be added to the base container and mixed thoroughly until a uniform consistency is obtained, taking particular care to scrape the sides and bottom of the container.

It is recommended that mechanical mixing be employed, using a Fosroc mixing paddle MR3 on a heavy duty, slow speed electric drill.

## Application

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<b>Number of coats</b>	:	2
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<b>Theoretical application rate per coat</b>	:	0.2 litres per m <sup>2</sup>
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<b>Theoretical wet film thickness per coat</b>	:	200 microns
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<b>Tack free time</b>	:	2-3 hrs @ 20°C
<b>ASTM D1640</b>	:	1-1½ hrs @ 35°C

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#### Overcoating times – ASTM 1640

@ 20°C	:	6-12 hours
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@ 35°C	:	2-4 hours
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#### Fully cured – ASTM D1640

@ 20°C	:	5 days
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@ 35°C	:	3 days
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The minimum application temperature is 5°C

All surfaces should be treated with two coats of Nitocote EP403.

The thoroughly mixed material should be applied with a suitable brush or roller or spray equipment

The first coat must be firmly applied and be well scrubbed into the surface, ensuring a uniform coating with a wet film thickness not less than 200 microns. The first coat should be allowed to dry for not less than 2 hours and not more than 16 hours at 35°C.

The second coat should be applied exactly as above, again achieving a wet film thickness not less than 200 microns.

### Cleaning

Nitocote EP403 should be removed from tools and equipment with Fosroc Solvent 102 immediately after use. Cured material can only be removed mechanically.

### Limitations

- Nitocote EP403 should not be applied over existing coatings.
- Nitocote EP403 is not suitable for use in marine environments that are subject to adherent organic growth.
- Application should not be undertaken if the temperature is below 5°C, or is 5°C and falling, nor when the prevailing relative humidity exceeds 90%.
- In conditions of high relative humidity i.e. 85-90% good ventilation conditions are essential. Substrate temperature should be at least 3°C above dew point.



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- Although Nitocote EP403 may be applied to damp concrete, there must be no standing or running water.
- Nitocote EP403 is not colour stable when exposed to direct sunlight or when in contact with some chemicals. Dekguard PU or Dekguard PU100 may be used to provide colour stability.
- On curing Nitocote EP403, the final colour can vary with curing conditions, and in adverse conditions such as low temperature and/or high humidity, a white bloom may appear on the surface. However, this does not affect the performance of the coating.

## Storage

When stored in dry air conditioned stores at temperatures between 5°C and 30°C in the original, unopened containers all products have a shelf life of 12 months.

If stored at high temperatures the shelf life will be reduced. Air conditioned storage at high ambient temperatures is recommended.

## Estimating

### Supply

<b>Nitocote EP403</b>	:	4 litre packs
<b>Nitoprime SP</b>	:	4 litre packs
<b>Fosroc Solvent 102</b>	:	5 litre cans

### Coverage

<b>Nitocote EP403</b>	:	5.0 m <sup>2</sup> /litre @ 200 microns wft per coat
<b>Nitoprime SP</b>	:	8 m <sup>2</sup> / litre

**Note:** The coverage figure is theoretical – due to wastage factors and the variety and nature of substrates, practical coverage figures may be substantially reduced.

## Precautions

### Health and safety

Nitocote EP403, Nitoprime SP and Fosroc Solvent 102 should not come in contact with the skin and eyes, or be swallowed.

When using Fosroc Solvent 102 ensure adequate ventilation and avoid inhalation of vapour. Some people are sensitive to resins, hardeners and solvent. Wear suitable protective clothing, gloves and eye protection.

The use of barrier creams provides additional skin protection. In case of contact with the 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.

### Fire

Nitocote EP403 is non-flammable.

Nitoprime SP and Fosroc Solvent 102 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO<sub>2</sub> or foam. Do not use a water jet.

### Flash point

<b>Fosroc Solvent 102</b>	:	33°C
<b>Nitoprime SP</b>	:	57°C

For further information, refer to the Product Material Safety Data Sheet.



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### Important note

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