

Fosroc Nitocote NT402



constructive solutions

Environmentally friendly epoxy resin coating

Uses

Provides chemical and abrasion resistance to prevent corrosion of concrete surfaces for applications such as :

- Seawater tanks, channels and intakes.
- Manhole and pipe linings.
- Sewage works and effluent plants.
- Chemical processing.
- Foundation waterproofing.
- Jetties, piers and docks.

Advantages

- **Environment friendly** - no VOC. Totally free of carcinogenic materials like coal tar, pitch and aromatic hydrocarbons.
- **Low cost service life** - excellent chemical and abrasion resistance, does not support bacterial growth.
- **Cost saving** - primerless system.
- **Added value system** - acts as an impermeable waterproof coating and excellent resistance to underground environment.

Description

Nitocote NT402 is based on selected epoxy resins. It is supplied as a two pack material in pre-weighed quantities ready for on-site mixing and use.

Nitocote NT402 is applied as a two coat application. It is generally applied at a wet film thickness of 200 micron per coat, but can be applied at greater thicknesses to suit exposure conditions.

Nitocote NT402 is available in Light Grey, Dark Grey, Black, Brick Red and Sage Green.

Nitocote NT402 is available in marine grade for applications necessitating biocidal and micro-biostatic effect.

Specification

The corrosion resistant coating shall be Nitocote NT402, a tar-free, 100% solids epoxy resin coating. The coating shall possess a high-build capability to facilitate varying application thickness. It shall further possess excellent bond to the concrete substrate. The coating shall be resistant to underground conditions, alkalis, salt solutions and dilute acidic solutions.

Properties

Solids content	: 100%
Specific gravity (ASTM D1475)	: 1.35 g/cm ³ at 23°C

Pot life (ASTM D2471)	:
at 23°C	45 minutes
at 35°C	20 minutes

Tack free time (ASTM D1640)	: 2 to 3 hours at 23°C 1-1.5 hrs @ 35°C
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Overcoating time (ASTM D1640)	: 6-8 hours at 23°C 3-4 hours at 35°C
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Full cure (ASTM D1640)	: 4 days at 23°C 2 days @ 35°C
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Abrasion Resistance (ASTM D4060-CS10 wheel, 1kg weight)	: < 50 mg weight loss in 1000 cycles
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Adhesion Strength (ASTM D4541)	: 2.0 N/mm ²
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Water Absorption (ASTM C642)	:
after immersion @23°C	Nil
after immersion & boiling	0.1%

Resistance to Chloride ion penetration (AASHTO T259 & 260)	: Resistant
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Resistance to Sulphate ion penetration (AASHTO T259)	: Resistant
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Resistance to CO₂ diffusion: (AFTL inhouse method)	Resistant
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Resistance to Bacterial growth: (AWWA/APHA 20th Ed.:98)	Resistant
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Resistance to Fungal growth: (ASTM D3273)	Resistant
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Chemical resistance :

Tests were carried out in accordance with ASTM D1308. Test was conducted at room temperature of 23°C and specimens were soaked in the solution for a period of 7 days.

Acids (m/v)

Hydrochloric acid 10%	: Excellent
Sulphuric acid 10%	: Very good
Nitric acid 10%	: Very good
Phosphoric acid 10%	: Very good
Acetic acid 5%	: Very good

Alkalis (m/v)

Ammonia 15%	: Excellent
Sodium Hydroxide 25%	: Excellent
Potassium Hydroxide 25%	: Excellent

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Salt Solutions

Sodium Chloride (Sat.)	:	Excellent
Potassium Chloride (Sat.)	:	Excellent
Magnesium Chloride (Sat.)	:	Excellent

Aqueous solutions

Water	:	Excellent
Sea water	:	Excellent
Raw sewage	:	Very good

Consult the local Fosroc office for specific recommendations to meet each operating condition.

Instructions for use

Preparation

All surfaces to be treated with Nitocote NT402 must be clean and free from dust or loose material.

Concrete surfaces

All laitance must be removed by grit blasting, or other suitable removal methods. The general standard of surface preparation should be in accordance with ACI 503R-89, Chapter 5, Paragraph 5.4.

Following the preparation of a concrete surface, care should be taken to ensure that any surface irregularities are filled with Nitomortar FC⁺⁺ or Nitomortar FC(B)⁺⁺.

Metal surfaces

Any metal surfaces should be grit blasted to a bright finish, meeting the requirements of Swedish Standard SA 2½ or equal.

Priming

Concrete surfaces

Priming is not required on properly prepared concrete surfaces - see Preparation section.

Metal surfaces

All metal surfaces should be coated immediately after preparation. If this is not possible and to eliminate formation of rust, prime the metal surfaces using Nitoprime 25*.

Mixing

The contents of the resin can should be thoroughly stirred to disperse any possible settlement.

The entire contents of **both** the hardener **and** resin cans should be poured into a suitable sized mixing vessel.

It is recommended that the two components are mixed together mechanically using a slow speed electric drill fitted with a Fosroc Mixing Paddle (MR3). Mixing should be carried out continuously for 3 to 5 minutes, until a uniform consistency is achieved.

Although Nitocote NT402 is a non-solvent product, it is still recommended that mixing should take place in an open, well ventilated area.

Application

A minimum 2 coat application is generally recommended to ensure a full, unbroken coating is achieved.

Brush/Roller application

Once mixed, the material should be immediately applied, ensuring that a continuous coating is obtained. The first coat is applied to achieve a uniform coating with a wet film thickness not less than 200 microns, and should be allowed to dry for at least 3 hours at 35°C before the application of the second coat.

The second coat should be applied between 4 hours and 2 days (at 35°C) after the application of the first coat. The second coat should be applied as above again achieving a wet film thickness not less than 200 microns.

Spray application

Where large areas are to be coated, it is advisable to consider spray application. Consult the local Fosroc office for further details and recommendations.

Cleaning

Tools and equipment should be cleaned with Fosroc Solvent 102* immediately after use.

Hot weather working practices

Whilst the performance properties of Nitocote NT402 at elevated temperatures are assured, application under such conditions can sometimes be difficult. It is therefore suggested that, for temperatures above 35°C, the following guidelines are adopted as a prudent working regime:

- Store unmixed materials in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.



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- (ii) Keep mixing and placing equipment cool, arranging shade protection if necessary. It is especially important to keep cool those surfaces of the equipment which will come into direct contact with the material itself.
- (iii) Try to eliminate application in the middle of the day, and certainly avoid application in direct sunlight.
- (iv) For hand application, ensure that there are sufficient operatives available to complete application within the pot life of the material.
- (v) Have a ready supply of Fosroc Solvent 102 available for immediate cleaning of tools after use.

Repairing and overcoating

Any applications of Nitocote NT402 which have become damaged can be readily overcoated.

The existing surface should well abraded, using a stiff wire brush, or similar, to ensure that a good mechanical bond will be achieved between the two layers.

Any loose material should be removed.

Overcoating works can then proceed as for new work, always ensuring that the prepared substrate is free from any moisture.

Limitations

- Nitocote NT402 is formulated for application to clean sound substrates of steel or concrete; and where it can be protected from contact with water for the first 24 hours after application as discolouration could occur.
- Nitocote NT402 should not be applied over other existing coatings, but can be applied on top of itself (see above).
- For cold weather working (down to 5°C), it is recommended that materials are stored in a heated building and only removed immediately before use. Accelerated heating methods are **not** to be utilised under **any** circumstances.

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

Nitocote NT402	:	10 litre & 400 litre packs
Nitoprime 25	:	1 and 4 litre packs
Fosroc Solvent 102	:	5 litre packs

Coverage

Nitocote NT402	:	5.0 m ² /litre @ 200 microns wft (per coat)
Nitoprime 25	:	5.0 m ² /litre

Note: Coverage figures quoted are theoretical, and based upon application to a properly prepared substrate of nominal C30 concrete.

Since application conditions vary greatly; due to substrate porosity, quality of surface preparation, application thickness and wastage factors, the on-site figures may vary from those shown above.

Storage

Nitocote NT402 supplied in 10 litre packs have a shelf life of 12 months whereas the bulk packs of 500 kg have a shelf life of 3 months, when stored in warehouse conditions below 35°C. Avoid storage of material under direct sunlight.



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Precautions

Health and safety

Nitocote NT402, Nitoprime 25 and Fosroc Solvent 102 should not come in contact with skin or eyes, nor should they be swallowed. Avoid inhalation of vapours and ensure adequate ventilation.

Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves and eye/face protection. Barrier creams such as Kerodex Antisolvent or Rozalex Antipaint provide additional skin protection.

Should accidental skin contact occur, remove immediately with a resin removing cream such as Kerocleanse Standard Grade Skin Cleanser or Rozaklens Industrial Skin Cleanser, followed by washing with soap and water - **do not** use solvent.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical attention immediately - **do not** induce vomiting.

For further information, please consult the Material Safety Data Sheet for Nitocote NT402.

Fire

Nitocote NT402 and Nitomortar FC are non-flammable.

Nitoprime 25 and Fosroc Solvent 102 are flammable. Do not use near a naked flame.

Flash points

Nitoprime 25	:	55°C
Fosroc Solvent 102	:	33°C

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. **All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.**

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