

Aliphatic, acrylic, structural protective coating

Uses

Nitocote FBC is designed to protect atmospherically exposed, reinforced concrete structures from attack by chloride ions, oxygen and moisture ingress, especially where there is a danger of subsequent cracks appearing within the substrate. Typical uses include, but are not necessarily limited to, the following:

- Bridge structures
- Concrete storage tanks - external surfaces
- New and existing structures

Advantages

- **High performance** - comprehensive barrier against carbon dioxide, water, sulphates and chloride ions.
- **Crack accommodation** - withstands substrate cracking up to 2 mm.
- **Breathable** - permits water vapour escape from the structure.
- **Extremely durable** - elastomeric with hardwearing.

Description

Nitocote FBC is an elastomeric structural protective coating, resistant to aggressive atmospheric elements and is available in a wide range of colours.

The Nitocote FBC system comprises of a single component primer, a single component elastomeric pigmented coating and a single component filler, all ready for immediate site mixing and usage.

Design criteria

Nitocote FBC should be applied in two coats to achieve a total dry film thickness of not less than 200 microns, in order to obtain the protective properties.

Properties

The values obtained are for the Nitocote FBC system applied at the minimum recommended application rate.

Solids by weight	: 64%
Volume solids	: 50%
Improvement in UV Reflectivity	
(ISO-Tech 11L 350 Dig. Light Meter	: >100%
Re-radiation of infra red light	: >95%
Resistance to heat and humidity	: Resistant
(NFT-30-802)	
Chloride ion diffusion coefficient	: Nil after
(Taywood method)	180 days
Reduction in chloride ion penetration	
AASHTO M259	: >92%
Carbon dioxide diffusion resistance -	
DCO₂ (Taywood method)	: $7.86 \times 10^{-8} \text{cm}^2 \text{s}^{-1}$
Water vapour transmission rate	: $5.59 \times 10^{-5} @$
DH₂O	200 microns dft
Reduction in Water absorption	
(ASTM C642)	: >90%
Static crack spanning capability	
@ 200 microns dft @23°C	: 2 mm
(modified ASTM C836-76)	
Abrasion resistance	
(ASTM D4060 - CS10-1kg-100cycles):	22mg wt loss
Impact Resistance	: No disbondment
(ISO 6272)	cracking or unsticking
Adhesion	
ASTM D4541	: >1.0 N/mm ²
Adhesion after exposure to	
salinated fog (NFT-30-062)	: 1.65 N/mm ²
Resistance to salinated fog	
(NFT-41-002)	: Resistant

Fosroc Nitocote FBC

Specification

Where shown on the contract documents, the protective coating system shall comprise the following elements :

- (i) a penetrating silane-siloxane primer (Nitocote FBC Primer), and
- (ii) a single component, elastomeric, aliphatic acrylic coating. (Nitocote FBC)

The total dry film thickness of the protective coating system shall be not less than 200 microns, and shall provide :

- (a) CO₂ diffusion resistance (DCO₂) lesser than 2×10^{-7} (Taywood method),
- (c) Breathability greater than 5×10^{-5} ,
- (d) Static crack accommodation of 2mm (modified ASTM C836-76).
- (e) Adhesion greater than 1.0 N/mm² as per ASTM D4541.

Instructions for use

Application over existing membranes and/or coatings

It is not necessary to remove Fosroc's Nitobond AR** or Rendercure** prior to the application of Nitocote FBC.

However, for all other types of membrane or coating; it is advisable to carry out trials to determine both compatibility with Nitocote FBC, and retention of bond between the underlying coating or membrane and the substrate. For further advice, contact the local Fosroc office.

Substrate preparation

All surfaces should be dry and free from contamination such as oil, grease, loose particles, decayed matter, moss, algal growth, laitance, and all traces of mould release oils. This is best achieved by lightly grit-blasting the surface to the point where the fine aggregates are exposed but not polished. Where moss, algae or similar growths have occurred, treatment with a proprietary biocide should be carried out after the grit-blasting process.

It is essential to provide an unbroken coating of Nitocote FBC. Thus all blow holes and similar surface irregularities should be filled using Renderoc BF**, and should be allowed to cure properly before the application of Nitocote FBC. Consult the local Fosroc office for further details.

Substrate priming

A primer coat is required to penetrate and 'stabilise' the substrate. The depth of penetration of the primer, and thus its coverage rate, are determined by substrate profile, porosity and general condition.

Hence for low permeability concretes, primer penetration will be low and area covered per litre will be high - permeability may be affected by cement replacements (e.g. microsilica). It is thus recommended that a general coverage rate of 4m²/litre be observed, noting that this may change according to substrate condition.

Any areas of glass should be masked. Plants, grass, joint sealants, asphalt and bitumen-painted areas should be protected during application.

The primer is best applied by using portable spray equipment e.g. knapsack-type. A uniform surface appearance (sheen) should be apparent when the required rate of application rate has been achieved. If any matt, porous patches remain, then a further application of Nitocote FBC Primer should be made. If in any doubt regarding substrate priming, contact the local Fosroc office.

Nitocote fbc primer could be replaced by epoxy primer (nitoprime sp) In cases where higher bonding strength is required to the weak concrete, however please contact the technical department for further advise.

Application

The correct application rates and overcoating times should be observed, in order to obtain the complete benefits of the protective properties of the Nitocote FBC system, except where substrate condition dictates different application rates for the primer.

	Nitocote FBC Primer	Nitocote FBC
Number of coats	1	2
Theoretical application rate per coat	4m ² /ltr	5m ² /ltr
Theoretical wet film thickness per coat	n/a	200 microns
Overcoating time:		
@ 20°C	2 hours	when firm to
@ 35°C	1 hour	the touch

Fosroc Nitocote FBC

The primer should be allowed to dry for a minimum of 2 hours at 20°C (or 1 hour at 35°C) before application of Nitocote FBC. Under no circumstances should the primer be overcoated until the surface is properly dry.

Prior to commencing application of Nitocote FBC, any surface irregularities should be filled with Nitocote FBC Filler*, and allowed to dry.

Nitocote FBC should preferably be applied by airless spray equipment, but can also be applied by roller. For further information about application techniques and equipment consult the local Fosroc office.

All primed substrates should be treated with two coats of Nitocote FBC. It is important that no gaps or 'raw edges' appear in the finished coating. Special care should be taken to provide an unbroken coating at external corners and similar exposed protrusions.

The first coat should be applied to achieve a uniform coating with a wet film thickness not less than 200 microns. This coat should be allowed to dry until firm to the touch. Typically, this will be after approximately 12 hours in dry weather at 35°C.

Prior to application of the second coat, a close visual inspection of the surface should be made to check for any pin holes or surface irregularities. Any such irregularities should be filled with Nitocote FBC Filler*, and allowed to dry before proceeding.

The second coat of Nitocote FBC should be applied at 90° to the first, to ensure a final full unbroken coating to the substrate. The second coat should once more be applied at a wet film thickness of not less than 200 microns.

In order to maintain a record of the coating activities a coating log should be kept.

Cleaning

Nitocote FBC and Nitocote FBC Filler should be removed from tools and equipment with clean water immediately after use. Nitocote FBC Primer should be removed using Fosroc Solvent 102*.

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 FBC Primer	: 20 litre drums
Nitocote FBC	: 20 litre drums
Nitocote FBC Filler	: 19 litre drums
Renderoc BF	: 10 kg bag
Fosroc Solvent 102	: 5 litre drums

Coverage

Nitocote FBC Primer	: 4.0 m ² per litre (total)
Nitocote FBC	: 2.5 m ² per litre (total)
Renderoc BF	: 5.8ltrs per 10kg bag

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

Limitations

- Where application over existing sound coatings or paints is required, trials should be conducted to ensure compatibility and retention of the bond between the underlying coating and the substrate. Compatibility and soundness should be assessed on a trial area.
- Nitocote FBC should not be used in submerged or permanently wet conditions. Consult the local Fosroc office for recommendations.
- Application should not commence if the temperature of the substrate is below 20°C or above 60°C, or where 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.
- Nitocote FBC should not be applied in windy conditions where early-age dust adhesion may occur, or where rain is likely within 2 hours.

Storage

When stored in cool, dry conditions, away from sources of heat and naked flames, in the original, unopened packs, all products have a shelf life of 12 months.

If stored at high temperatures and/or high humidity conditions the shelf life may be reduced. Nitocote FBC should be protected from frost.

Fosroc Nitocote FBC

Precautions

Health and safety

Nitocote FBC Primer, Nitocote FBC and Fosroc Solvent 102 should not come in contact with the skin and eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to alkalis, resins and solvents. Wear suitable protective clothing, gloves and eye protection. If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provide additional skin protection. In case of contact with 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 FBC and Renderoc BF are non-flammable.

Nitocote FBC Primer and Fosroc Solvent 102 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO₂ or foam. Do not use a water jet.

Flash points

Nitocote FBC Primer	: 38°C
Fosroc Solvent 102	: 33°C

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

Supplementary information

Application rates and coverage of Nitocote FBC may be varied according to particular service conditions. However, to ensure that the desired performance properties of the material are attained, it is important to observe correct application procedure.

Hot weather working practices

Whilst the performance properties of Nitocote FBC 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:

- (i) Store unmixed materials in a cool (preferably temperature controlled) environment, avoiding exposure to direct sunlight.
- (ii) Keep application 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, when ambient temperatures will be excessively high.
- (iv) 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.

* Denotes the trademark of Fosroc International Limited

† See separate data sheet



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.**

Head Office

telephone: (+9714) 2039699

fax: (+9714) 2859649

email: agf@fosroc.com

Regional offices

Abu Dhabi, Al Gurg Fosroc
Bahrain, YBA Kanoo
Kuwait, Boodai
Oman, Al Amana
Qatar, Tadmur

telephone: 673 1779
telephone: 17738200
telephone: 4817618
telephone: 24815080
telephone: 4432365

fax: 673 1449
fax: 17732828
fax: 4832124
fax: 24817554
fax: 4419517

email: abudhabi@fosroc.com
email: bahrain@fosroc.com
email: kuwait@fosroc.com
email: oman@fosroc.com
email: qatar@fosroc.com

Al Gurg Fosroc LLC

Post Box 657, Dubai
United Arab Emirates

www.fosroc.com

