Nitocote EPU

UV resistant, Flexible protective coating, based on hybrid epoxy polyurethane resins

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

- Wall and floor coating for concrete protection
- Manhole and pipe linings
- Secondary containments
- Lining for sewage and effluent plants
- Sea water tanks, channels and intakes
- Foundation waterproofing
- Reservoirs, water treatment plants

Advantages

- Flexible coating
- Cost saving - Primerless system, easy brush roller or spray application
- Added value system - acts as an impermeable waterproof
- Excellent resistance to underground environment
- Excellent chemical resistance, UV resistance
- Does not support bacterial growth

Description

Nitocote EPU is a two component hybrid epoxy polyurethane based coating, to give unique physical properties. It is supplied in pre-measured quantities ready for site mixing and use. The material cures to form flexible protective coating.

Design criteria

Nitocote EPU is designed to be applied in two coats (200 microns each) to achieve a film thickness of 400 microns. Higher builds are achievable in layers or by the use of airless spray equipment. Please contact your local Fosroc office for more details on different methods of application.

To achieve the correct protective properties, Nitocote EPU must be applied at the coverage rates recommended.

Specification

The corrosion resistant coating shall be Nitocote EPU, a flexible hybrid epoxy-polyurethane coating. It shall possess excellent bond to the concrete substrate. The coating shall be resistant to underground conditions, alkalis, salt solutions and acidic solutions.

It shall also be resistant to wide range of oils, fuels, sea water and sewage.

Properties

<table>
<thead>
<tr>
<th>Properties</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>~1.48 @ 25°C</td>
</tr>
<tr>
<td>Pot life</td>
<td>3 hours @ 25°C</td>
</tr>
<tr>
<td></td>
<td>1.5 hours @ 35°C</td>
</tr>
<tr>
<td>Tack free time</td>
<td>6 hours @ 25°C</td>
</tr>
<tr>
<td></td>
<td>3 hours @ 35°C</td>
</tr>
<tr>
<td>Full cure</td>
<td>7 days @ 25°C</td>
</tr>
<tr>
<td></td>
<td>4 days @ 35°C</td>
</tr>
<tr>
<td>Adhesion Strength</td>
<td>More than concrete</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>0.2%</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>10 N/mm²</td>
</tr>
<tr>
<td>Elongation at break</td>
<td>Approx 25%</td>
</tr>
<tr>
<td>Abrasion Resistance</td>
<td>0.1 g / 1000 cycle</td>
</tr>
<tr>
<td></td>
<td>(CS 17 wheel)</td>
</tr>
</tbody>
</table>

Chemical resistance

Tests were carried out in accordance with ASTM D1308, at room temperature of 25°C and specimens were soaked in the solution for a period of 7 days.

<table>
<thead>
<tr>
<th>Acids (m/v)</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric acid 10%</td>
<td>Resistant</td>
</tr>
<tr>
<td>Sulphuric acid 25%</td>
<td>Resistant</td>
</tr>
<tr>
<td>Nitric acid 10%</td>
<td>Resistant</td>
</tr>
<tr>
<td>Phosphoric acid 15%</td>
<td>Resistant</td>
</tr>
</tbody>
</table>

Aqueous solutions

| Tap water                    | Resistant    |
| Sea water                    | Resistant    |
| Ground water                 | Resistant    |

Discoloration and/or slight softening or swelling might occur when subjected to certain chemicals or concentrations. Consult the local Fosroc office for specific recommendations to meet each operating condition.

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.
Nitocote EPU

Instructions for use

Preparation

All surfaces to be treated with Nitocote EPU should be clean, dry, smooth, sound and free from debris and loose material. Surfaces must be free from contamination such as oil, grease, dust, loose particles and organic growth or any other forms of foreign matter which might affect adhesion.

Concrete surfaces

Concrete surfaces that are to receive the coating should be placed for at least 28 days or have a moisture content of less than 5%. They should be free of laitance and any traces of shuttering release oils, curing compounds, and free from dust. All surface laitance should be removed by grit blasting or diamond grinding to provide a suitable key for the coating.

Following the preparation of a concrete surface, care should be taken to ensure that any exposed blowholes and imperfections are filled with Nitomortar TC2000 (see separate data sheet).

Metal surfaces

All metal surfaces should be grit blasted to meet the requirements of Swedish Standards SA 2½ or equivalent. 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 generally required for concrete surfaces when using Nitocote EPU on a dry, sound, good quality non-porous concrete. For old concrete consult Fosroc office.

Concrete surfaces

If concrete surface is porous, or w/c ratio is greater than 0.5, it is recommended to use Nitoprime 31.

Metal surfaces

All surfaces should then be primed immediately after preparation using Nitoprime 28 to eliminate formation of rust. It is mixed in the proportions supplied and applied as a thin continuous film. The primer should be touch dry but allowed to cure for not more than 24 hours at 25°C prior to application of Nitocote EPU.

Mixing

The contents of the base should be pre-stirred thoroughly to disperse any settlement. The entire contents of the hardener tin should be added to the base container and mixed thoroughly until a uniform colour and consistency are obtained, taking particular care to scrape the sides and bottom of the container. It is recommended to mix mechanically using a Jiffy mixer on a slow speed electric drill for 3 to 5 minutes, until a uniform consistency is achieved.

Application

Generally, all surfaces should be coated with at least two coats of Nitocote EPU to ensure a full, unbroken coating is achieved. Once mixed, Nitocote EPU should be immediately applied to the surface at the recommended film thickness.

Hand application

Nitocote EPU can be hand-applied using a brush or short hair lamb’s wool roller. The first coat should be firmly applied onto the prepared surface as soon as mixing is complete, and scrubbed well into the surface to achieve uniform thickness of 200 microns. The second coat should be applied within 8 to 48 hours at 25°C of the application of the first coat, ensuring having unbroken film thickness of 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

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

Hot weather working practices

Whilst the performance properties of Nitocote EPU 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 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.
**Nitocote EPU**

**Repairing and over-coating**

Any applications of Nitocote EPU which have become damaged can be readily over-coated.

The existing surface should be 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.

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

**Use of glass fibre reinforcement**

In case required, Nitocote EPU may be used in conjunction with glass fibre reinforcement to increase coating thickness, or where it is necessary to bridge static cracks in the substrate. The fabric should be laid directly onto the first coat whilst it is still wet, and should be pressed in and smoothed out with a split washer roller or suitable alternative. Second and subsequent coats may then be applied in accordance with the ‘over-coating times’ mentioned above. Open weave glass cloth in the range of 100 to 300 gm/m² is considered most suitable for this application.

**Limitations**

- Nitocote EPU 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 discoloration could occur.

- 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 utilized under any circumstances.

- 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 high temperature conditions, of above 35°C, hot weather working practices should be adopted (see above).

- Nitocote EPU should not be thinned by any type of thinner during mixing or any method of application. Hence the use of Fosroc Solvent 102 is for equipment’s and tools cleaning purpose only.

- Nitocote EPU is not cooler stable when exposed to direct sunlight or when in contact with some chemicals.

**Supply**

<table>
<thead>
<tr>
<th>Nitocote EPU:</th>
<th>10 and 20 Liter Packs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primers (if required)</td>
<td></td>
</tr>
<tr>
<td>Nitoprime 28:</td>
<td>1 and 5 kg Packs</td>
</tr>
<tr>
<td>Nitoprime 31:</td>
<td>1, 5 &amp; 15 kg Packs</td>
</tr>
<tr>
<td>Nitomortar TC2000</td>
<td>5 &amp; 10 kg Packs</td>
</tr>
<tr>
<td>Fosroc Solvent 102:</td>
<td>4 &amp; 25 Liter Packs</td>
</tr>
</tbody>
</table>

**Coverage**

- Nitocote EPU: 5.0 m²/litre @ 200 microns (per coat)
- Nitoprime 28: 6 m²/kg
- Nitoprime 31: 5 m²/kg

Note: The coverage figures given are theoretical due to wastage factors and the variety, porosity, nature and preparation quality of substrates. Actual coverage figures may reduce.

**Storage**

Nitocote EPU has a shelf life of 12 months if kept in a dry store between 5°C and 30°C in the original, unopened Containers. If stored at high temperatures the shelf life may be reduced.

**Precautions**

**Health and safety**

Nitocote EPU, Nitoprime 31 and Fosroc Solvent 102 should not come in contact with skin or eyes, nor should they be swallowed. Avoid inhalation of vapors’ 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 Rozakleans 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 see the Safety Data Sheet for Nitocote EPU.
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Fire

Nitocote EPU, Nitoprime 31, and Nitomortar TC2000 are non-flammable.

Nitoprime 28 and Fosroc Solvent 102 are flammable. Do not use near a naked flame. 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

Nitoprime 28: 32°C
Fosroc Solvent 102: 33°C

For further information, refer to the product’s safety datasheet.

Additional Information

Fosroc manufactures a wide range of complementary products which include:

- Waterproofing membranes & waterstops
- Joint sealants & filler boards
- Cementitious & epoxy grouts
- Specialized 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.

Disclaimer

Fosam Company reserves the right to amend its datasheets at any time; please ensure that the latest published datasheet version is used.

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