

Fosroc® Nitocote EN901

constructive solutions

High chemical resistant protective coating

Uses

Nitocote EN901 is an epoxy novolac coating designed to provide protection to concrete and steel structures in aggressive chemical conditions. The material is particularly suitable in wastewater treatment, desalination, food processing, electric power, chemical manufacturing, fertiliser and insecticide plants, petroleum refineries and pulp and paper mills.

Nitocote EN901 may be used with or without Nitoflor FC Anti-slip grains as a heavy-duty floor coating in applications such as chemical processing and drum storage areas, loading docks and ramps. It may also be used in conjunction with glass fibre cloth to increase the thickness of the system or to reinforce structures subjected to aggressive chemicals.

Advantages

- 100% solids, solvent free
- Exhibits excellent chemical resistance in pH levels ranging from 1-14 at 25°C
- Excellent adhesion to properly prepared concrete, mild steel, and other substrates
- Excellent abrasion resistance

Description

Nitocote EN901 is a solvent free, highly crosslinked, high build epoxy novolac based coating. Nitocote EN901 is a two-part grey material applied by brush or roller. It is formulated to be applied in two coats to achieve a minimum total-dry-film thickness of 400 microns. Higher thickness can be specified.


Specification

Chemical and abrasion resistant lining

The chemical and abrasion resistant coating shall be Nitocote EN901, a high build, two-pack epoxy-novolac system specially designed to provide a tough and impermeable high chemical resistant film.

Standards Compliance

Nitocote EN901 complies with EN1504-2: Surface protection principles 1.3, 2.2, 5.1, 6.1 and 8.2.

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Nitocote EP901	
EN1504-2: Surface protection systems methods 1.3, 2.2, 5.1, 6.1 and 8.2	
Adhesion strength by pull-off test	> 2MPa Trafficked rigid system
Abrasion resistance	< 3000 mg
Permeability to CO ₂	> 50 m
Permeability to water vapour	Class 1 < 5 m
Capillary absorption and permeability to water	< 0.1 kg/(m ² h ^{0.5})
Chemical resistance	Average decrease < 50% Shore Hardness
Impact resistance	Class III: > 20 Nm
Reaction to fire	A2
Dangerous substances	Complies with 5.3
Compatibility on wet concrete	≥ 1.5MPa

Properties

Solids content	: 100%
Finish	: Gloss
Colour	: Grey
Specific gravity	: 1.35
Pot life	: 45 min. @ 23°C
Tack-free time	: 4 hours @ 23°C
Overcoating time	: 4 to 16 hours @ 23°C
Full cure	: 7 days @ 23°C
Tensile strength (ASTM D638)	: 20 N/mm ²
Flexural strength (ASTM C580)	: 20 N/mm ²
Compressive strength (ASTM C579)	: 70 N/mm ²
Hardness (ASTM D2240)	: >70 Shore D
Service temperature	: -20 to 60°C

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Chemical resistance

The fully cured coating is resistant to the splash/spillage of the following chemicals:

Acetic Acid 25%	Hydrochloric acid 35%
Ammonium Hydroxide *	Hydrofluoric acid 25%
Benzene	Jet fuel
Benzoyl chloride	Isopropanol
Benzyl alcohol	Ethylene glycol monoethyl ether
Bleach (Sodium hypochlorite)	Kerosene
Boric Acid *	Lactic acid 20%
Brake Fluid	Methyl isobutyl ketone
Brine 10%	Mineral spirit
Car oil	Nicotinic acid *
Carbon tetrachloride	Nitric acid 30%
Castor Oil	Phenol 50% in IPA
Deionised water	Phosphoric acid 85%
Diesel fuel	Potassium hydroxide *
Diethanolamine 88%	Propylene glycol
Ethylene glycol	Sea water
Hydrogen peroxide 20% sol	Skydrol
Fatty acids	Sodium hydroxide *
Formaldehyde 37%	Sulfuric acid **
Petrol	Tartaric acid 50%
Hexamine 25%	Toulene
Hexane	Vegetable oils
Hydrazine 35%	Xylene

* Any concentration in water

** 30% Indefinite; 50% maximum 24 hours

The local Fosroc office should be consulted for resistance to specific chemicals and conditions or when long term exposure is required.

Instructions for use

Preparation of concrete surfaces

All surfaces, which are to receive the coating, must be at least 28 days old or have a moisture content of less than 5%. These surfaces shall be dry, sound and free from debris and loose material. The substrate must be free from contamination such as oil, grease, wax, dirt or any other form of foreign matter which might affect adhesion.

All surfaces should be grit blasted to remove all foreign matter and open up all blowholes and provide a suitable key for Nitocote EN901.

All blow holes and imperfections should be filled with Nitomortar FC.

Preparation of steel surfaces

All surfaces should be grit blasted to meet the requirements of BS7079 SA 2.5.

The coating work should be programmed so that newly cleaned steel is coated as soon as possible before the formation of rust or scale.

Priming

Nitocote EN901 is designed to be used without primer. However, if the concrete substrate is considered porous, Nitoprime 25 can be used.

Mixing

For optimum application, prior to mixing the product, substrate temperatures should remain above 5°C (see Limitations). Nitocote EN901 should be stored at 15 to 25°C for 48 hours before use. It is imperative that the resin be thoroughly mixed with the hardener in the exact ratios to ensure optimum performance. Therefore, the entire contents of the hardener container should be added to the base container and mixed until a uniform colour and consistency are obtained, taking particular care to scrape the sides and bottom of the container. It is recommended that mechanical mixing be employed using a Jiffy mixer, or similar, on a slow speed electric drill.

Application

Once mixed, Nitocote EN901 should be immediately applied to the prepared surface ensuring a continuous coating of uniform thickness is obtained.

A maximum film thickness of 200 microns can be achieved on vertical surfaces per coat.

Stiff nylon brush or short nap roller is recommended for such application.

Overcoating

To overcoat, it is imperative that the second coat be applied within the specified overcoating time.

Use of glass fibre reinforcement

Nitocote EN901 may be used in conjunction with glass fibre cloth to increase the thickness of the system or, where necessary, bridge fine cracks in the substrate. The cloth should be laid directly on the first coat whilst wet and should be pressed in and smoothed out with a split washer roller. A second coat should then be applied within the specified over-coating time.

Use of Fosroc Anti-slip grains

Nitocote EN901 can be used in conjunction with Nitoflor FC Anti-slip Grains, fine or medium, to provide a heavy-duty slip-resistant flooring system. A trial area is recommended to assess the level of anti-slip required.

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The first coat will be applied as described above with a minimum film thickness of 200 microns. The base coat should now be dressed with Nitoflor FC Anti-slip Grains whilst wet.

The recommended procedure is to completely blind the base coat i.e. apply excess dressing aggregate to completely obliterate the base coat.

When the base coat has reached initial cure, the excess Antislip Grains should be vacuum-cleaned from the surface.

The top coat can then be applied. Care should be taken to ensure that a continuous film is achieved and the surface is completely sealed. Application by squeegee followed by back rolling is one means of achieving this.

Cleaning

Nitocote EN901 should be removed from tools and equipment with Fosroc Solvent 102 immediately after use. Cured material can only be removed mechanically.

Limitations

- Substrate, ambient and product temperature should remain above 5°C to aid application.
- Nitoflor EN901 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.
- Application should not be undertaken when the prevailing relative humidity exceeds 90%.
- Nitocote EN901 may not be colour stable when in contact with some chemicals or direct sunlight. The colour change, due to sunlight, will not affect the performance of the protective system either on concrete or steel.
- At material and substrate temperatures of 5°C the viscosity of the product will increase to make application difficult.
- Nitocote EN901 must be cured for at least 7 days before facing long term chemical exposure.
- Batch to batch shade variation may be experienced.

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 EN901	: 4 litre packs
Nitoprime 25	: 0.95 and 5kg packs
Fosroc Solvent 102	: 5 litre cans

Coverage

Nitocote EN901	: 10m ² /pack @ 400 microns
Nitoprime 25	: 5m ² /0.95kg pack 26m ² / 5kg pack

Note:

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

Storage

When stored in dry air conditioned stores at temperatures between 5-30°C, in the original, unopened containers Nitocote EN901 will have a shelf life of 18 months.

Precautions

Health and safety

For further information refer to the appropriate safety data sheet.

Fire

Fosroc Solvent 102 is 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

Fosroc Solvent 102	: 33°C
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Important note

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