Nitocote® EN901

FOSROC constructive solutions

High chemical resistant protective lining

Uses

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

Nitocote EN901 may be used with or without Fosroc 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

- Nitocote EN901 is 100% solids, no solvents
- Nitocote EN901 exhibits excellent chemical resistance in pH ranging from 1-14 at 25°C
- Nitocote EN901 has an excellent adhesion to properly prepared concrete, mild steel and other substrates
- Nitocote EN901 has excellent abrasion resistance

Description

Nitocote EN901 is a solvent free, highly crosslinked, high build epoxy-novolac-based coating. Nitocote EN901 is a two-part material and can be applied by brush, roller or airless spray. Nitocote EN901 is grey in colour. It is formulated to be applied in one or two coats to achieve a minimum total-dry-film thickness of 500 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.

Properties

Solid content	:	100%
Finish	:	Gloss
Colour	:	Grey
Specific gravity	:	1.35
Pot life	:	45 min. @ 23°C 20 min. @ 35°C 25min. @ 27°C

GreenPro Ecolabel Certified by CII

Tack-free time	: 4 hours @ 23°C 2 hours @ 35°C
Overcoating time	: <16 hours @ 23°C <10 hours @ 35°C
Full cure	: 7 days @ 23°C 5 days@ 35°C
Tensile strength (ASTM D638)	: 30 N/mm^2
Flexural strength (ASTM C580)	: 30 N/mm^2
Compressive strength (ASTM C579)	: 85 N/mm^2
Hardness (ASTM D2240)	: >70 Shore D
Abrasion resistance (1kg, CS10 Wheels) (ASTM D4060)	: <0.10 mg/cycle
Water Permeability for 5 bar pressure@72 hrs (BSEN 12390 (Part 8)	: 0.00 mm
Service temperature	: < 60°C
Reaction to fire (ASTM E84/UL 723)	: 'Class A' (For flame spread Index (FSI) and Smoke development Index (SDI)
VOC	: 9.63 g/l

Chemical resistance

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

Acetic Acid 25%	Hydrochloric acid 35%
Ammonium Hydroxide *	Hydrofluric 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%

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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%	Skydro
Fatty acids	Sodium hydroxide
Formaldehyde 37%	Sulphuric acid
Gasoline	Tartaric acid 50%
Sewage	Citric acid 50%
Hexamine 25%	Toulene
Hexane	Vegetable oils
Hydraoine 35%	Xylene

* Any concentration in water

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 lining, must be at least 28 days old and have a moisture content of less than 5%. These surfaces shall be dry, sound and free form 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 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 BS4232, 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

Nitocote EN901 is designed to be used without primer. However, if the condition of the concrete substrate requires priming, Nitoprime 25* can be used.

Mixing

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 can should be added to the base container and mixed until a uniform colour and 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 Jiffy mixer 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.

Stiff nylon brush or short nap roller is recommended for such application. Faster rate of application is possible using airless spray equipment.

Nitocote EN901 can be applied at a thickness of around 250 microns per coat giving an overall thickness of 500 microns in two coats. However for vertical surfaces the thickness can be achieved in 3 to 4 coats depending upon site conditions.

Re-coating

To re-coat, it is imperative that the second coat be applied within the specified over-coating 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 Fosroc Antislip Grains*† to provide a heavy-duty slip-resistant flooring system.

The first coat will be applied as described above with a minimum film thickness of 200 -250 microns. The base coat should now be dressed with the chosen Fosroc Antislip Grains.

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.

Cleaning

Nitocote EN901 should be removed from tools and equipment with Nitoflor Sol* immediately after use. Cured material can only be removed mechanically.

Limitations

- Substrate, ambient and product temperature must remain above 15°C during application and curing. Minimum material/container temperature for spray application is 20°C. Avoid moisture contamination.
- Nitoflor EN901should 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, or by a Thermo Hygrometer
- 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%.
- Nitocote EN901 may not be colour stable when in contact with some chemicals or direct sunlight. This coating is not recommended for exterior application.

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 :1 & 4 litre packs
Nitotoflor Sol : 5 and 20 litre cans

Coverage

Nitocote EN901 : 0.5 litre /m^2 @ 500 microns WFT/DFT
Nitoprime 25 : 5.5 - 6.5 m^2 per 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.

Storage

Shelf Life

When stored in dry air conditioned stores at temperatures between 15-30°C, in the original, unopened containers Nitocote EN901 will 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.

Precautions

Health and safety

Nitocote EN901 and Nitoflor Sol should not come in contact with skin and eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapour. If working in confined areas, then suitable respiratory equipment must be worn. Some people are sensitive to resins and solvents. Wear suitable protective clothing, gloves and eye/face protection. Barrier creams provide additional skin protection. Should accidental skin contact occur, remove immediately with a resin-removing cream, followed by 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

Nitoflor Sol is flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO_2 or foam. Do not use a water jet.

Flash points

Nitoflor Sol	:	33°C

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

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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.

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