

Fosroc® Nitocote EP405

FOSROC



constructive solutions

Solvent-free ground gas resistant, epoxy resin coating for waterproofing and protecting concrete structures

Uses

As a gas resistant waterproof coating, Nitocote EP405 is suitable for application to below ground retaining wall and foundation structures including construction joints to maintain waterproofing and ground gas protection continuity as part of a solution conforming to the recommendations detailed in BS8102:2022 and BS8485:2015+A1:2019. It enables continuity of waterproofing and ground gas protection to be achieved in locations where the use of sheet membrane products is not feasible. It is compatible for use with the Proofex range of sheet membranes.

As a protective coating it is suitable for lining and waterproofing potable water retaining structures* and surfaces subject to contact with foodstuffs. The cured film is corrosion, chemical and abrasion resistant and is suitable for application to basements, tunnels, tanks, silos, reservoirs*, water treatment works*, breweries, dairies and meat and food processing plants. The cured film is non-toxic and meets the requirements of BS 6920. (* See 'Limitations'.)

Advantages

- High build application
- Can be applied directly to mild steel and concrete
- Smooth, glossy, easy to clean surface
- Corrosion, chemical and abrasion resistant
- Can be applied to damp surfaces
- Waterproof
- Ground gas and water vapour barrier

Description

Nitocote EP405 is a two-part, solvent free, epoxy resin coating available in blue and white. It is supplied in pre-measured quantities ready for site mixing and application. It may be applied in one or two coats to achieve the required film thickness depending on the application type.

As a gas resistant waterproof coating it provides a Type A waterproofing barrier as defined in BS8102:2022 and a ground gas-resistant liquid applied membrane compliant with BS8485:2015+A1:2019 Table 7.

As a protective coating it provides a chemical and abrasion resistant surface for concrete and steel substrates..



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Nitocote EP405	
EN1504-2: Surface protection systems methods 1.3, 2.2, 5.1, 6.1 and 8.2	
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
Adhesion strength by pull-off test	> 2.0 (rigid trafficked systems)
Fire Classification	A2
Dangerous substances	Complies with 5.3



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Specification Clauses

Ground Gas Resistant Waterproof Coating

The prepared designated concrete surfaces shall be coated with Nitocote EP405, a two pack epoxy coating applied in one or two coats to achieve a total coating thickness 400microns (0.4mm) in accordance with the manufacturer’s published instructions to achieve a sealed surface. Where required the coating shall be broadcast with aggregate during the application process.

Protective Coating

The prepared designated concrete and / or steel surfaces shall be coated with Nitocote EP405, a two pack epoxy coating applied in two coats (blue + white) at a rate of 0.2 litres per square metre per coat accordance with the manufacturer’s published instructions to achieve a sealed surface.

Standards compliance

BS 6920:2014 Effect on Water Quality.

Water Regulations Advisory Scheme Approved.

Compliant with the permeability requirements of BS 8485: 2015 Table 7 (Unjointed).

Properties

Volume solids:	100%
Viscosity:	Pourable, spreadable liquid
Pot life:	
@ 20°C:	30 to 40 minutes
@ 35°C:	10 to 15 minutes
Permeability to Methane Gas (unjointed): (BS ISO 15105-1)	< 5 ml/day/m ² /atm
Total thickness:	400 microns
Overcoating times:	
@ 5°C:	18 to 48 hours
@ 20°C:	6 to 18 hours
@ 30°C:	3 to 9 hours
Fully cured *:	
@ 5°C:	14 days
@ 20°C:	7 days
@ 30°C:	7 days

* see Limitations

The local Fosroc office should be consulted for resistance to specific chemicals.

Application instructions

Preparation

Concrete surfaces (Exposed Protective Coating Application)

All surfaces must be smooth, sound and free from contamination and areas of standing water. Concrete surfaces must be fully cured, laitance free and free from any traces of shuttering release oils and curing compounds.

All surfaces should then be grit blasted to remove all foreign matter and open up blow-holes and provide a suitable key for Nitocote EP405.

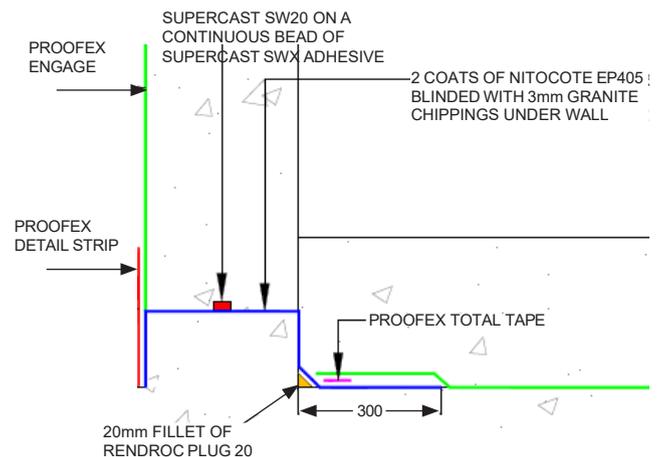
All blow holes and imperfections should be filled with Nitomortar FC. Consult the local data sheet for pot life and overcoating time.

Spalled surfaces, those containing large blow holes or surface imperfections should be repaired or rendered using a Fosroc approved repair mortar or render. Contact the local Fosroc office for further advice on suitable materials.

Concrete Surfaces (Gas-resistant Waterproof Coating Application)

New concrete substrates should be suitably cured and of sufficient strength prior to the product application. All surfaces, including textured construction joint faces, must be sound and free from weak surface deposits, contamination and areas of standing water (not wet to the touch).

All voids should be repaired using a Fosroc repair mortar to ensure continuous protection is achieved. Contact the Fosroc Technical Department for detailed advice.



Typical application within a foundation concrete construction joint



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Steel surfaces

All surfaces should be grit blasted to meet the requirements of BS 7079 Sa2.5. The lining work should be programmed so that newly cleaned steel is coated as soon as possible before the formation of rust or scale.

Mixing

Thoroughly stir the contents of the base can. Empty the entire contents of the hardener can into the base container and mix thoroughly until a uniform 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 Fosroc Sealant Mixing Paddle on a heavy duty, slow speed electric drill.

Application

All prepared surfaces should be coated with one to two coats of Nitocote EP405 as necessary to achieve the required total coating thickness of 400microns (0.4mm). Mark out the area to be covered by a single unit of material at the chosen application rate (see Estimating).

One Coat Application

The thoroughly mixed material should be applied with a suitably stiff brush or squeegee working the coating well into the surface particularly where uneven / textured substrates are present. When touch dry carefully inspect the coated surface for pinholes and voids and fill in where required to ensure a completely unbroken coating is achieved.

Note: It may be difficult to achieve the required coating thickness in a single coat to vertical surfaces.

Two Coat Application

The first coat must be firmly applied with a suitably stiff brush and be well scrubbed into the surface, ensuring a uniform coating with a wet film thickness not less than 200 microns. The first coat should be allowed to dry for not less than 6 hours and not more than 18 hours at 20°C.

The second coat should be applied exactly as above, again achieving a wet film thickness not less than 200 microns.

For ease of overcoating, it is recommended that the first coat be white and the second coat blue, or vice-versa.

Cold Weather Working

For cold weather working, it is recommended that Nitocote EP405 be stored in a heated building and removed immediately before use, as workability deteriorates and curing times increase at lower temperatures.

Aggregate Surfacing

Where there is a requirement for a non-slip finish or additional shear resistance within a concrete construction joint an appropriate grade of aggregate should be broadcast into the finish coat as soon as applied. The use of Nitoflor Anti-Slip Grains (2-3mm) is recommended for construction joints.

Cleaning

Nitocote EP405 should be removed from tools and equipment with Fosroc Solvent 102 immediately after use. Cured material can only be removed mechanically.

Estimating

Supply

Nitocote EP405 (blue & white colours)	2.5kg packs (1.5 litres)
Fosroc Solvent 102	5 litre cans

Coverage

Number of coats:	1 - 2
Application rate per coat:	0.2 litres per m ² (2 coat application) 0.4 litres per m ² (1 coat application)

Note:

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

Limitations

Nitocote EP405 should not be applied over existing coatings.

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%.

Although Nitocote EP405 may be applied to damp concrete, there must be no standing or running water.

Nitocote EP405 is not colour stable when exposed to direct sunlight nor when in contact with some chemicals. On curing Nitocote EP405, the final colour can vary with curing conditions, and in adverse conditions such as low temperature and/or high humidity, a white bloom may appear on the surface. However, this does not affect the performance of the coating.

* Before commencing application it is important to ensure that Nitocote EP405 meets all current compliance requirements. Note: Nitocote EP405 meets the requirements of BS 6920 the United Kingdom Water Regulations Advisory Scheme but not Regulation 31 of the Water Supply (Water Quality) Regulations 2000.

In accordance with WRAS listing, when Nitocote EP405 is used in contact with potable water, curing conditions are 21 days at 7°C.

Storage

All products have a shelf life of 18 months if kept in a dry store between 5°C and 30°C in the original, unopened containers. Material from different batches shall be stored separately.

If stored at high temperatures the shelf life may be reduced.



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Precautions

Health and safety

For further information refer to appropriate Product Safety Data Sheet.

Disposal

To eliminate risk of exotherm, only mix product when ready for use and then apply without delay. Any unused residue should be poured on to a disposable impervious surface to allow cure before disposal.

Fire

Nitocote EP405 is non-flammable.

For further information, refer to Product Safety Data Sheet.

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 point

Fosroc Solvent 102:	33°C
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For further information, refer to the Product Safety 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 Services, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given. All Fosroc datasheets are updated on a regular basis. It is the user's responsibility to obtain the latest version.

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