Fosroc®
Nitoflor SL3000 U ESD

FOSROC constructive solutions

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Flow applied medium to heavy duty, electrostatic dissipative cementitious polyurethane floor topping

Uses

Nitoflor SL3000 U ESD is designed for use as a medium to heavy duty flooring system in eg. electronics manufacture and assembly areas, hospital operating theatres, where a static dissipative floor with a resistance in the region of $x10^4$ ohms is required. The floor has the highest order of resistance to chemical attack, abrasion and physical aggression.

Description

Nitoflor SL3000 U ESD is a medium-heavy duty, flow applied, three component, electrostatic dissipative, cementitious, polyurethane floor topping system. The system comprises a solvent free epoxy primer, a conductive undercoat and a 3-6mm dissipative top coat and cures to a smooth matt finish.

Advantages

- Antistatic property
- Ease of application
- Easy to clean
- Water-based and non-tainting
- Seamless
- High abrasion and impact resistance.

Chemical Resistance

Nitoflor SL3000 U ESD is resistant to a wide range of commonly used chemicals in the food, dairy and pharmaceutical industries such as concentrated citric acid, spirit vinegar (50% acetic acid), lactic acid (food & dairy products) and common alcohols (methanol & ethanol).

Nitoflor SL3000 U ESD is also resistant to a wide range of inorganic acids, fuels, hydraulic oils, mineral oils and solvents. Good housekeeping practices should be employed. Please consult Fosroc for further advice.

Some staining or discolouration may occur with some chemicals, depending on dwell time, temperature, type of chemical and degree of housekeeping employed. This does not affect the product service integrity or durability.

Typical Properties

BS 8204-6 (3-4 mm)	FeRFA Type 5 Floor (medium duty)
BS 8204-6 (5-6mm)	FeRFA Type 7 Floor (heavy duty)

Substrates

Concrete, polymer modified screeds, grano concrete.

CE

Fosroc Ltd
Drayton Manor Business Park, Coleshill Road, Tamworth, B78 3XN, UK
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DOP: UK9-188

Fosroc Nitoflor SL3000 U ESD

EN 13813 SR - B2,0 - AR0,5 - IR20
Synthetic resin screed material for use internally in buildings not subject to reaction to fire regulations.

Reaction to fire	NPD
Release of corrosive substances	SR
Water permeability	NPD
Wear Resistance	AR0,5
Bond strength	B2,0
Impact resistance	IR20
Sound insulation	NPD
Sound absorption	NPD
Thermal resistance	NPD
Chemical resistance	NPD

Note: The typical physical properties given above are derived from testing in a controlled laboratory environment. Results derived from testing field-applied samples may vary, dependent on actual site conditions.

The slip resistance figures given are affected by application techniques and prevailing site conditions. Slip resistance can reduce over time due to poor maintenance, wear or surface contaminants. Nitoflor SL3000 U ESD has a smooth finish so can be expected to become slippery when wet. Good housekeeping practices to be observed.

Cure Schedule at 20ºC

Working life of full packs :	
Nitoflor ESD Primer	45 minutes
Nitoflor SL3000 U ESD	10-15 minutes

Note: Usable working life of material following mixing and immediate spreading as per the application instructions

Finished floor:	
Cure time to light pedestrian traffic	12 hours
Cure time to light wheeled traffic	24 hours
Cure time to medium duty traffic	48 hours
Cure time to heavy duty traffic (4-6mm)	7 days
Full chemical resistance	7 days

Note: The above cure times are approximate and given as a guide only. These times can vary due to prevailing site conditions.

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Instructions for preparation and use

Fosroc Nitoflor SL3000 U should be installed by specialist applicators, who must follow the procedures laid down in guideline documents such as BS 8024 Part 6:2008 Code of practice – Synthetic Resin Floorings, and the Fosroc Method Statement - PU Cementitious Flooring.

Application Conditions

Ideal ambient, material and substrate temperature range is 15 25ºC to achieve best results. The product components should be stored in a cool area (or warm area in the case of low ambient temperature), using localised forced cooling or heating equipment as appropriate, in order to bring product temperature within the ideal range. The product can be applied outside this ideal temperature range (subject to a minimum of 10ºC and maximum of 32ºC) but this may in some cases result in aesthetic effects such as trowel or spike roller marks in the finished floor. In these cases physical properties and durability of the floor are not affected.

The substrate and applied floor must be kept at least 3ºC above the dew point to reduce the risk of condensation or blooming on the surface, from before priming to at least 48 hours after application of Nitoflor SL3000 U ESD.

Surface Preparation

Inadequate preparation may lead to loss of adhesion and failure. In coatings or flow-applied systems, there is a tendency for the finish to mirror imperfections in the substrate. Grinding or light vacuum-contained shot blasting is therefore preferred over planing for these systems. Percussive scabbling or acid etching is not recommended.

Anchorage grooves should be cut to a minimum depth and width of 2x the flooring thickness to be laid, at the edges, day joints, up-stands, drains, doorways and at regular points across the floor, and all debris removed.

New concrete floors

The base should be a minimum of Grade RC30 of BS 8500-2: 2002 and should not contain a water repellent admixture. The surface strength when assessed using a rebound hammer should be above 25 or the surface tensile strength should exceed 1.5 MPa.

The laitance and any surface sealer or curing membrane should be removed by mechanical means such as shot blasting or grinding to expose the coarse aggregate. After surface preparation, all loose debris and dirt should be removed by vacuum equipment.

For concrete bases in contact with the ground, a damp proof membrane should have been incorporated into the slab design, in accordance with the requirements of CP102 (Code Of Practice For The Protection Of Buildings Against Water From The Ground).

Old concrete floors

All laitance and surface contamination should be removed by mechanical means such as shot-blasting or grinding to expose the coarse aggregate. After surface preparation, all loose debris and dirt should be removed by vacuum. Heavy oil or grease deposits should be removed either mechanically, or by steam cleaning, or by biological treatment, then by high pressure water blasting followed by the application of a penetrating primer. Where oil or grease contamination has been severe or of long duration, these methods may prove unsatisfactory and in these cases removal of the affected base is necessary.

In existing buildings without a functioning damp-proof membrane, the application of a surface-applied membrane should be considered. Hydrostatic pressure may, under certain circumstances, cause adhesive failure between the flooring and the substrate. Where this is likely to occur, such as in areas where the ground water table is higher than the substrate, and where external tanking has not been applied, pressure relief must be provided, e.g. by direct drainage.

A close visual examination should be made to verify cleanliness and soundness. Any weak or suspect areas should be repaired.

Application Instructions

Priming/ Sealing

Fosroc Nitoprime two-component solvent-free epoxy primer should be applied as a primer; contact Fosroc office for advice. Coverage rate will depend on concrete surface texture and porosity. This is designed to prime and seal the floor, and allow the placement of self-adhesive copper electrical earthing tape. Mix and spread the primer evenly by short-haired roller and/ or brush, ensuring that anchorage grooves are fully wetted out. The primer should be allowed to cure for 12 - 48 hours at 20ºC. If the primer has been allowed to cure for >48 hours then the coat must be thoroughly abraded and a fresh layer of primer applied.

If severe pin-holing is evident in the primer, indicating that air is rising from the substrate, then remedial action should be taken. Contact your local Fosroc office for advice. Failure to do so may result in increased risk of pin-holing of the surface topping.

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Electrical earthing with copper tape

Each individual slab must be either electrically directed to earth, or connected to each other by electrical bridging connection with an earthing point. Self-adhesive copper tape should be used for this purpose. As a general rule, copper tape should be applied at maximum 4 metre centres, ensuring that no part of the floor is >2 metres away from copper tape.

Conductive Priming

Nitoflor ESD Primer should be applied. Fully drain the contents of the hardener component into the base component and mix thoroughly with a low speed electric mixer (300 - 400 rpm) for a minimum of 3 minutes, scraping sides and bottom of container until homogeneous. Pour the material into a fresh container and mix for a further minute.

Apply evenly from a tray using a medium pile roller or brush. Do not pour the primer directly onto the substrate as this may result in thick patches. Do not exceed the coverage rate of 10 m2/pack. Use a paintbrush to work the material into earthing and bridging points to ensure good contact. Allow to cure for 12 - 48 hours at 20ºC. When primer has dried, the resistance to earth must be measured and must be ≤5 x 104 ohms. This test must be carried out and the result logged. If, when cured, there are glossy or bare patches, a further primer coat is required. If the primer has been allowed to cure for >48 hours then the coat must be thoroughly abraded and a fresh layer of primer applied.

Application of SL3000 U ESD

Nitoflor SL3000 U ESD is a three-component product. A forced-action rotary paddle mixer is recommended for mixing the product. Thoroughly mix and drain the contents of the coloured liquid base component into a large plastic container, and scrape down with a flat bladed scraper to ensure complete draining. Thoroughly drain the hardener component and mix for 1 minute or until a homogeneous mix is obtained. Load the aggregate component whist mixing, and continue mixing for 3 minutes or until a lump-free mix is obtained.

Immediately discharge and spread the mix over the application area with a notched trowel to the required coverage rate, level with a steel float and de-aerate using a spiked roller, rolling only into the previously applied adjacent area. Spike rolling should be carried out within 3 minutes of application in order to avoid interfering with flow and surface finish. Ensure that anchorage grooves are fully wetted out with material. Do not return to spike roll older applied areas as the product is fast-setting and this action will leave spoiling marks on the applied floor.

The finished floor should be protected from other trades using Kraft paper or similar breathable material. Polythene should not be used. Protect the installed floor from damp, condensation and water for at least 4 days.

Supply

Nitoprime	refer to Fosroc office
Nitoflor ESD Primer	5 kg packs
Nitoflor SL3000 U ESD	19.7 kg packs

Coverage

Nitoprime	Coverage appropriate to texture and porosity of floor Nominal 4 m^2/kg
Nitoflor ESD Primer	20 m^2/pack
Nitoflor SL3000 U ESD	3.3 m^2/pack at 3 mm
(floor topping)	1.7 m^2/pack at 6 mm

Note: Coverage figures given are theoretical. Actual site practical coverage figures may vary, due to wastage factors and the type and condition of the substrate.

Colours

Fosroc Nitoflor SL3000 U ESD is available in a range of standard Fosroc colours. Fosroc Nitoflor SL3000 U ESD is not colour fast and may yellow over time. The rate of change will depend on UV light and heat levels and cannot be predicted. This will be more pronounced with lighter colours and blue shades and does not compromise the product's in-service performance or chemical resistance characteristics.

Cleaning

Regular cleaning is essential to maintain and enhance the life expectancy, slip resistance and appearance of the floor. Fosroc Nitoflor SL3000 U ESD can be easily cleaned using industry standard cleaning chemicals and techniques. Consult your cleaning chemical and equipment supplier for more information.

Health and Safety

Fosroc Nitoprime, Nitoflor ESD Primer and Nitoflor SL3000 U ESD should not come into contact with the skin and eyes, or be swallowed. Ensure adequate ventilation and avoid inhalation of vapours.

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 provides 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. Refer to Product Safety Data Sheet for further information.

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Fire

Fosroc Nitoprime, Nitoflor ESD Primer and SL3000 U ESD are non-flammable

Storage, Mixing & Application

Fosroc Nitoflor SL3000 U ESD has a shelf life of 12 months (6 months for the aggregate component) if stored off the ground in unopened packs in a dry store under cover at 10 - 30ºC. Storage outside this temperature range or repeated fluctuations in storage temperature can reduce the storage life. Protect from frost.

Limitations

Do not proceed with application if atmospheric relative humidity is, or is anticipated to be within the tack-free period, >90% or if the surface temperature is <3ºC above the dew point.

Application should not commence when the substrate temperature or the ambient temperature is, or is anticipated to be, <10ºC during the application or within the tack-free period. The design strength of concrete surfaces must be a minimum of 25MPa compressive strength at 28 days.

The manufacture of Fosroc Nitoflor SL3000 U ESD is a batch process and despite close manufacturing tolerances, colour variation may occur between batches.

Slip resistance can reduce over time due to poor maintenance, general wear or surface contaminants. Nitoflor SL3000 U ESD has a smooth finish so can be expected to become slippery when wet. Good housekeeping practices must be observed. Application can take place outside the ideal temperature range of 15 - 25 ºC, subject to a minimum of 10ºC and a maximum of 32ºC, however the surface finish may be subject to e.g. trowel and/or spike roller marks.

Fosroc Nitoflor SL3000 U ESD is not colour fast and may yellow over time. The rate of change will depend on UV light and heat levels and cannot be predicted. This will be more pronounced with lighter colours and blue shades and does not compromise the product's in service performance or chemical resistance characteristics.

Technical Advice

For further information on this or any other Fosroc product, please contact your local Fosroc office.

Note

The information contained in this document, and all further technical advice given, is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labour involved in the application are beyond our control.

Fosroc Limited
Drayton Manor Business Park
Coleshill Road, Tamworth,
Staffordshire B78 3XN. UK

www.fosroc.com

telephone:
+44 0 (1827) 262222

fax:
+44 0 (1827) 262444

email:
enquiryuk@fosroc.com