Project:
Waterproofing and oil repellency for **porous & fibrous** surfaces such as carton, drywall/plasterboard, plaster and absorptive composite wood, like plywood or particle board.

Industry:
Building & Construction

Product:
SurfaPore F

Key Benefits:
- Long Lasting
- Easy surface application
- Promotes paint adhesion
- Water based
- Extremely low VOC
- Cost Effective

Applications:
- Water and Oil protection of absorptive fibrous surfaces
- Waterproofs drywalls / plaster boards.
- Can be used as a primer
- Protects composite wood and carton or kraft paper
- Prevents mould growth
- Prevents warping
- Prevents swelling

Packaging:
1L, 4L, 10L, 30L Containers, 1000L IBCs

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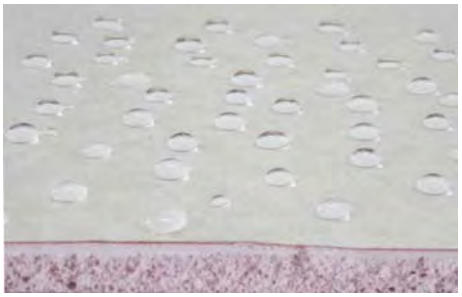
SurfaPore® F

Water and oil protection, primer for fibrous materials, such as carton or kraft paper, plasterboards, drywalls and composite wood

SurfaPore F is a water based formulation that can be easily applied on fibrous surfaces, plasterboards, drywalls, composite wood and carton. It can be directly applied on gypsum plaster as well! SurfaPore F protects, oil- & waterproofs these sensitive fibrous surfaces, effectively repelling water and stains. Gypsum boards, drywalls and composite woods (particle boards and plywood) are protected from moisture, mould and microorganisms. It can also be used as a primer improving the adhesion of paints. SurfaPore F modified surfaces can last longer protected from weathering, swelling and warping.



After SurfaPore F application, the beading effect of water on plasterboards is visible both on the protective carton lining and the gypsum plaster mass.

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SurfaPore F Description

SurfaPore F is a water based formulation, developed by NanoPhos SA to provide an effective barrier against water and oil. It has been specially designed for fibrous surfaces, such as carton or kraft paper and absorptive composite wood (plywood or particle boards). It can even deal with the the demanding pH environment of gypsum plaster. SurfaPore F combines repelling nanoparticles together with the formation of a thin layer on the modified surfaces. It exhibits enhanced flexibility after curing, with minimum change of the original natural appearance. Indicatively, SurfaPore F reduces by more than 93% the water absorption of carton substrates.

SurfaPore F Applicability

SurfaPore F has been optimized to withstand humid environments and adverse weathering conditions. Gypsum plasterboards are very susceptible to humidity that subsequently leads to mould growth. SurfaPore F treated panels will not absorb moisture like the typical board and can therefore be installed near bathrooms or kitchens. The application of SurfaPore F assures that paint can be applied directly on the surface without the need of an extra, special primer. Additionally, pre-treated panels can be transported and installed without the hazard of rain that may swell or warp them. SurfaPore F can be directly applied on the exposed gypsum plaster. Alternatively, SurfaPore F can be applied on composite wooden substrates, such as plywood or particle boards, enhancing their life expectancy and excluding the adverse effects of humidity.

How SurfaPore F works?

SurfaPore F contains a moderately rigid resin that improves paint adhesion. While the resin creates an efficient protection layer on the fibrous substrate, nanoparticles repell water or oil stains. Their high surface area nanostructure is responsible for the applied repelling forces, that keep SurfaPore F modified surfaces dry and protected.

International Standards Testing

RILEM Test 11.4 - Measurement of Water Absorption: The test procedure RILEM 11.4 determines the water absorption rate of horizontal plasterboard surface, using a 10 cm glass tube filled with water. The glass tube water loss (in cm) is measured across time (24h max) and is reciprocal to the water protection of the tested substrate. For water resistant surfaces, loss of water is under 4 cm, whilst for waterproof surfaces the loss of water must be below 1cm. SurfaPore F exhibits water loss of 0,6 cm. **Gravimetric Analysis of kraft paper water absorption:** Water absorption is reduced by 93,25% after one hour immersion in a water bath at ambient temperature. **Contact Angle Measurement:** Water repellency is quantified by measuring the contact angle between a water droplet and the substrate. 120 seconds after water droplet deposition, SurfaPore F treated carton paper substrate exhibited contact angle of 135^{o}, whilst untreated substrate contact angle was decreased below 45^{o}.

Untreated Surface

SurfaPore F treated Surface

Contact Angle Analysis (above) indicates that a water droplet on an untreated sample (left) is absorbed by the substrate, while the droplet of the SurfaPore F sample (right) retains its original shape.

Application Note

Surface Application: The application surface should be dry and clean. Apply SurfaPore F by using a brush or roller. No dilution is required. On very absorptive surfaces re-apply within 3 hours. Maximum protection efficiency is achieved 24 hours post application.

Consumption: Estimated consumption rate 8-10 m²/L, strongly dependant on the absorptivity of the surface applied.

Expiration Date: 18 months after the production date. Avoid freezing.

Physical Properties

Milky White, Water Emulsion with slight odour and pH = 4,8. Boiling & Flash Point: >100°C. Auto Ignition Point: >100°C. Density: 1,01 g.cm^{-3} Viscosity: 4 mPa.s SurfaPore F is not considered an oxidant.

Safety & Storage

SurfaPore F contains no hazardous ingredients and is water based. VOC Content: 0.15 g/L (EU limit (2010): 140g/L). Not hazardous according to Council Directive 1999/45/EC and its subsequent amendments. Request, read and comprehend the relevant Safety Data Sheet.

What is Nanotechnology?

Nanotechnology refers to the scientific field, which deals with very small structures, usually sized below 100 nm. One nanometer (nm) is one billionth of a meter (10^{-9} m) - it is so small that if earth were one meter in diameter, then one nanometer would have been the size of an apple! Nanosized materials reveal unique properties when compared to ordinary, bulk materials or even molecules.

NanoPhos at a Glance...

At NanoPhos, we take advantage of the unique properties of nanotechnology and invent clever materials that solve every day problems. By harnessing nanotechnology, we seek to create a more comfortable, safe and trouble-free living environment. We transfer innovations out of our lab into the hands of consumers. Our vision is clear: "Tune the nanoworld to serve the macroworld" – in simple terms we make nanoparticles solve common problems. NanoPhos was recognized in January of 2008 by Bill Gates as one of the most innovative companies and also received the 1st prize for innovation at the prestigious 100% Detail Show in London. SurfaShield technology, received the prestigious GAIA award at the 2010 International Building and Construction Show BIG5 in Dubai for its environmentally friendly and innovative profile.NanoPhos is a rapidly growing company that is actively expanding its distribution network. Currently, the company is present in the UK, Ireland, Norway, Sweden, Finland, Denmark, Portugal, Italy, Greece, Cyprus, Japan, K. of Saudi Arabia, K. of Bahrain, China, New Zealand, Australia and Mexico.

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NanoPhos SA has been approved by Lloyd's Register Quality Assurance to follow the EN ISO 9001:2008 Quality Management System and EN ISO 14001:2004 Environmental Management System for the production and sales of chemical products for cleaning and protection of surfaces and nanotechnology products.

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