

## Project:

Repairing and fixing solution for loose or damaged building surfaces

## Product:

SurfaPore FX SB

## Key Benefits:

- Enhancement of compressive, tensile and flexural strength of building materials
- Stabilizes loose matter
- Breathable - does not affect porosity or vapour permeability
- Inorganic liquid formulation - Non film forming
- It does not change natural appearance
- Deep penetrating
- Long lasting, weathering and UV resistant

## Applications:

Interior or exterior worn and deteriorated building surfaces

- Stucco, plaster or render
- Cementitious materials
- Sand and porous stones
- Marbles
- Clay based tiles

## Packaging:

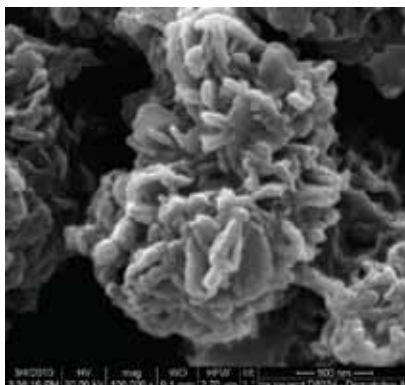
1L, 4L, 10L and 30L  
Plastic Containers



## SurfaPore FX SB

### Fixing Liquid for Stabilizing and Repairing Loose and Worn Building Surfaces

SurfaPore FX WB is an innovative hybrid nano-material for enhancing the mechanical properties and stabilizing loose and worn building surfaces. Inspired by the ingredients of the best preserved ancient monuments, SurfaPore FX contains calcium modified nanoparticles that fix and bind together with building materials, resulting in the enhancement of their mechanical properties. The complete absence of organic ingredients and resinous compounds assures long term effectiveness and weathering resistance. SurfaPore FX can be also applied on sensitive surfaces to enhance abrasion resistance. Porous and brittle sandstone surfaces will stop dusting upon application of SurfaPore FX. It can also be used in the restoration of monuments, due to the natural and biomimetic character.



*Calcium oxalate nanoparticles are key ingredients of SurfaPore FX formulation. This picture illustrates their shape and size; the later being between 30nm and 150nm.*

SurfaPore® is a registered trademark of  
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**NanoPhos**  
Pioneering  
Nanotechnology 

## SurfaPore FX SB Description

SurfaPore FX is a solvent based calcium oxalate suspension with functionalized nanoparticles. Due to the nanoparticles small size and solvent, penetration depth can reach more than 20mm (porous sandstone). After application nanoparticles penetrate the substrate, chemically attach on the application surface and covalently interconnect with each other. Therefore, they form a dense network, enhancing the mechanical properties of the worn or deteriorated surfaces. As the active ingredient is also inorganic, SurfaPore FX exhibits strong chemical affinity with building materials. The nanoparticles do not seal the pores but support the “walls” or cracks of the worn substrate. Therefore, natural appearance, water vapour permeability and porosity of the treated surfaces remain unaffected. SurfaPore FX creates a consistent surface with increased mechanical strength and durability. Ease of application makes SurfaPore FX suitable for both protecting and repairing deteriorated surfaces. The complete absence of resins, its inorganic composition in combination with the nano-particle size provide long term protection and weathering resistance.

### Performance testing

**Flexural Strength (ISO EN1015-1 Plaster sample):** Treated: 5,8MPa Untreated: 2,1MPa

**Compressive Strength (ISO EN1015-1 Plaster sample):** Treated: 24,5MPa Untreated: 8,5MPa

**Tensile Strength (Ultrasound Speed Method - Stone sample):** Treated: 3,46MPa Untreated: 2,81MPa

**Dynamic Young Modulus of Elasticity (Ultrasound Speed Method - Stone sample):** Treated: 4,5GPa Untreated: 1,6GPa

**Water Capillary Coefficient Determination (ISO EN480-5 Plaster sample after 24h testing):** Treated: 0,018 g/mm<sup>2</sup> Untreated: 0,032 g/mm<sup>2</sup>

**Vapour Permeability Coefficient (Plaster sample):** Treated: 0,0003 g.m<sup>2</sup>.h<sup>-1</sup> Untreated: 0,0003 g.m<sup>2</sup>.h<sup>-1</sup>

Calcite sandstone from Egypt



### Application Note

**Application:** Remove any dust, flaking or loose surface material. The application surface has to be dry and clean. Shake the SurfaPore FX WB container well before use. No dilution is required. Apply by using a brush, a roller or airless spray gun. On very absorptive or worn surfaces re-apply after 15 minutes. Suggested application temperature is 5-35°C. Test results on a small area before full scale application. **Drying time/Curing time:** Touch dry time is 30 minutes, depending on the relative humidity level and temperature. Maximum SurfaPore FX WB performance is achieved 30 days post application. **Consumption rate:** Estimated consumption rate 6-8 m<sup>2</sup>/L, strongly dependant on the properties of the surface applied.

### Physical Properties

Milky white, solvent based suspension with density: 0.90 ±0.05 g/cm<sup>3</sup>. Viscosity: 2 mPa·s. SurfaPore FX is not considered an oxidant.

### Safety & Storage

Highly flammable liquid and vapour. Causes serious eye irritation. May cause drowsiness or dizziness. Keep away from heat / sparks / open flames / hot surfaces. No smoking. Keep container tightly closed. Wash . . . thoroughly after handling. Wear protective gloves / protective clothing / eye protection / face protection. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor / physician if you feel unwell. Expiration Date: 18 months after the production date.



## What is Nanotechnology?

Nanotechnology refers to the scientific field, which deals with the research and creation of small matter particles, usually sized below 100 nm. One nanometer (nm) is one billionth of a meter (10<sup>-9</sup> 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 and 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 2008 by Bill Gates as one of the most innovative companies and also received the 1<sup>st</sup> prize for innovation at the prestigious 100% Detail Show in London. NanoPhos is a rapidly growing company that is actively expanding its distribution network. Currently, the company is present in the UK, Norway, Sweden, Denmark, Portugal, Spain, France, Italy, Greece, Cyprus, Egypt, Sudan, Saudi Arabia, Bahrain, UAE, Qatar, Oman, Iran, India, New Zealand, China, Japan, Mexico, Guatemala, Thailand, Malaysia and Singapore.

[www.NanoPhos.com](http://www.NanoPhos.com)



NanoPhos SA has been approved by Lloyd's Register Quality Assurance to follow the EN ISO 9001:2000 Quality Management System and the environmental management system EN ISO 14001:2004 for the development, production and sales of chemical products for cleaning and protection of surfaces and nanotechnology products. Furthermore, it is certified for occupational health and safety management systems with OHSAS 18001:2007.

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