Project:

Water- and Oil repellent for porous and absorptive wooden surfaces. Wood preservative and protection against wood-boaring insects.

Industry:

Building & Construction.

Wood treatment.

Wood Pressure Treatment.

Product:

SurfaPore W

Key Benefits:

- Simultaneously protects against oil and water absorption
- Effective against wood-boaring insects
- Prevents warping
- Preserves natural wood appearance
- Retains natural breathability
- Not film forming, invisible
- Most effective nano-based formula
- Long lasting
- Easy application
- Water based Environmentally friendly
- Cost effective

Applications:

- Absorptive wooden surfaces
- Pressure Treatment (diluted)
- Fences/Posts
- Roof Shingles
- Garden Furniture/Sheds
- Deckings & Docks

Packaging:

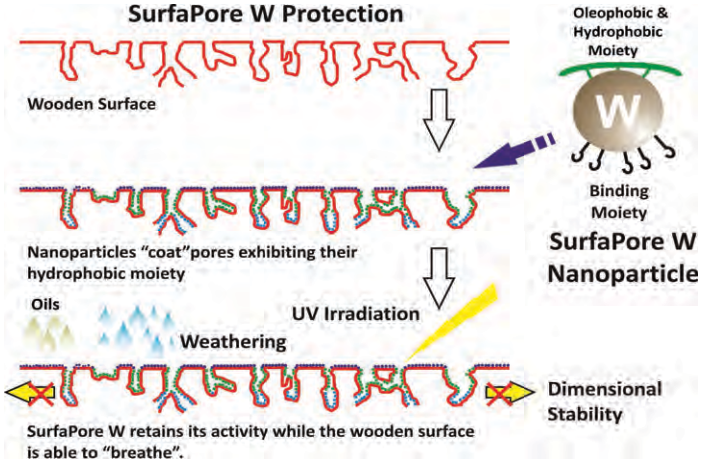
1L, 4L, 30L plastic canisters,
1000L IBC tanks

www.NanoPhos.com

SurfaPore W

Water & Oil Repelling Wood Preservative

SurfaPore W is designed to fit the unique properties of wooden surfaces. A combination of active ingredients simoultaneously repel water and oil stains, without changing the natural appearance of wood. SurfaPore W provides excellent dimensional stability even in the most humid environment. It actively repels water, blocking natural decay and warping. Oily threats, such as food or grease, cannot penetrate and cannot stain the natural looking wood. It does not affect the mechanical properties of wooden surfaces. Its water based formulation makes it easy to apply. Water and oil repellency are combined with active ingredients against wood-boaring insects (e.g. termites). Therefore, SurfaPore W is the ideal nano-formulation for preserving natural looking, absorptive wooden materials, offering a triple action: **Water repellence, Oil repellence and insect protection.**



SurfaPore® is a registered trademark of
NanoPhos SA,
PO Box 519,
Science & Technology Park of Lavrio
Lavrio 19500, Greece
T: +30 22920 69312 F: +30 22920 69303
E: info@NanoPhos.com

NanoPhos
Pioneering Nanotechnology

SurfaPore W Description

SurfaPore W is a water based formulation, specifically designed to harness the power of nanotechnology in order to preserve absorptive wooden surfaces. By making wood water resistant, it assures dimensional stability and protection against warping and decay. Additionally, it provides oil repellency in order to prevent oily stains from penetrating wood surfaces. SurfaPore W can provide complete protection for decking, fences/posts, facade and roof shingles, garden furniture and sheds, docks or any absorptive wood that needs combined protection and natural appearance.

SurfaPore W has been successfully used as an additive (10% dilution ratio) in pressure-treatment solutions to protect wood. The application of SurfaPore W does not induce any visible change on the surface applied and does not block the pores (no pore sealing like traditional varnishes or wood stains). Thus, the breathing ability of the natural wood surface is preserved.

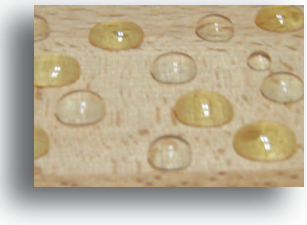
The formulation consists of three different nanoparticles distributions, specially designed to deeply penetrate into the wood mass. The finest nanoparticles penetrate through the capillaries and bond with the hydroxyl groups of the cellulose content providing long term protection against water ingress. Larger nanoparticles penetrate to the appropriate depth and react with lighter organic wooden resins. Finally, the formulation is completed by a nanoemulsion that ensures enduring surface protection.

SurfaPore W contains active ingredients against wood-boaring insects. The fact that the active ingredients are encapsulated among water repelling nanoparticles assures minimal leaching. Thus, insect protection lasts longer, as it is not washed away of the wood mass.

Industrially, SurfaPore W has proved itself when applied both by spraying, by dipping or in pressure chambers. In the case of particle boards, it has been demonstrated that injecting SurfaPore W just before the pressure treatment and heating step provides a complete protection method. All in all, the fact that SurfaPore W is water based and a one-pack formulation assures minimal disturbance in production processes.

International Standards Testing

SurfaPore W has been tested for dimensional stability according to ASTM standards: 73% water repellency according to D4446 and WRE = 96,73% water exclusion according to D5401. It takes more than 800h for water beading failure in a combined UV-moisture chamber (QUV-B, ISO EN 11507 Method A).



Water- and Oil repellency on absorptive pine wood

Application Note

Applicable on natural, absorptive wooden surfaces. Remove any varnish or wood stain residues before applying SurfaPore W. The application surface should be dry and clean. Shake well before use. SurfaPore W is ready for use; no need to dilute before applying. Apply SurfaPore W by brush, roller or spraying. Maximum performance is reached 24h after application. In case of very absorptive surfaces, reapply within 2 hours. Application temperature: 10-35°C (50-95°F). **Coverage:** 6-8 m^2 per Liter, strogly dependant on the properties of the surface applied. **Wood Stain or Varnish Application:** Let SurfaPore W cure for at least 72h before application. Applying wood varnish or stain on a SurfaPore W treated surface might affect their colour or adherence. Test results on a small area before full scale application. **Contains:** Permethrin 0.093% w/w, Additives 99,9% w/w. **Volatile Organic Compounds (VOC):** Maximum VOC content of this product is 38 g/L.

Safety

Use: Due to its active ingredient against insects, SurfaPore W should not be applied on apiaries, hives or in beekeeping activities. **Characteristics:** Pale yellow water based emulsion. **Safety:** **N** Dangerous for the environment. Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Keep locked up and out of the reach of children. Keep away from food, drink and animal feedingstuffs. Do not breathe gas or fumes. Avoid contact with skin and eyes. Wear suitable gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of in a safe way. Avoid release to the environment. Refer to special instructions/safety data sheets. **Expiry date:** 24 months after production date (see packaging) in its original, sealed container.

Keep locked up and out of the reach of children

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, Norway, Sweden, Portugal, France, Italy, Romania, Greece, Cyprus, Turkey, Egypt, Saudi Arabia, Bahrain, Qatar, UAE, Iran, India, China, New Zealand, Japan, Guatemala and Mexico.

www.NanoPhos.com

001

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.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY. The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that NanoPhos' products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent. NanoPhos specifically disclaims any other expressed or implied warranty of fitness for a particular purpose or merchantability. NanoPhos disclaims liability for any incidental or consequential damages. This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

ver 1013