

Industry:

Building & Construction

Product:

SurfaMix C

Applications:

- Plasters and renders
- Exterior or interior masonry coatings
- Cementitious mortar/grout
- Patch, repair and reprofiling mortars
- Strengthening of adhesive materials for tiles/stones
- Floor screeds/overlays
- Low adhesion/porosity surfaces as a primer

Benefits:

- Enhances (doubles) adhesion
- Promotes bonding
- Improves workability
- Prevents cracking
- Reduces water penetration
- Reduces/eliminates lime use
- Latex (SBR) free
- UV and weather resistant (does not become yellowish)
- Extends working time
- Can be applied as a primer
- Water based
- Environmentally friendly
- Cost effective

Packaging:

Canisters of 1Kg, 4Kg, 10Kg, 30Kg & IBC tanks of 1000Kg

4Kg & 10Kg canisters are equipped with volumetric view stripe.

For improved water repellency use SurfaPore C on dry cement based surfaces.

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SurfaMix® C

Cement and Plaster Admixture for Enhancing Adhesion, Elasticity, and Workability. Nanotechnology for Enhanced Water Resistance.

SurfaMix C is a water-based, latex-free admixture for cementitious mortars, grouts, renders and plasters that enhances adhesion and bonding on application surfaces. Further, it improves elasticity and reduces cracking, shrinkage and the formation of water absorbing capillaries. SurfaMix C is an ideal admixture for exterior or interior masonry coatings, patch, repair and re-profiling mortars, mortar grout and as an enhancing agent for adhesive materials used when laying ceramic tiles and stones. It reduces surface dusting on floor screeds/overlays and can be used as a primer to improve the adhesion of surfaces. SurfaMix C improves workability and extends the working time of the mix. Furthermore, it reduces water absorption by up to 70%.

Cementitious Mix



Cementitious materials require water for bonding and hardening. Uncontrolled setting can induce cracking of the surface or extended capillaries formation.

SurfaMix C Addition



SurfaMix C controls the water reaction with cementitious materials, decreasing rapid shrinkage and cracking. At the same time, a bonding grid fills the microscopic gaps, enhances the elasticity of the material and promotes bonding on the application surface.



SurfaMix® is a registered trademark of NanoPhos SA, PO Box 519, Science & Technology Park of Lavrio Lavrio 19500, Greece

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SurfaMix C Description

SurfaMix C is a water based, liquid formulation, developed and produced by NanoPhos SA. It can be mixed with cementitious powders to enhance their adhesion and bonding on application surfaces. SurfaMix C reduces shrinkage and the development of cracks or water absorbing capillaries and promotes plasticity of the mix during application. The nanoparticles contained assure chemical bonding to the pores of the surface and reduce water absorption, by up to 70%.

SurfaMix C makes mixing easier and setting times can almost double, enabling larger mix volumes and increasing workability during application. Due to its concentrated formulation, SurfaMix C is added in small quantities (5-10% per weight) and always as a function of the cement content and not of the total mix, that may include water and inert material (sand gravel, lime, etc.). The use of lime in renders, plasters or exterior coatings may be significantly reduced, due to the doubling in adhesion and bonding strength of the mix. For enhanced adhesion between existing and new cement surfaces, SurfaMix C can be diluted by 1:5 (1 part of SurfaMix C and 4 parts of water) and applied as a primer.

How SurfaMix C works?

In any cementitious mix, the addition of water is essential for setting, curing and the development of mechanical strength. Water promotes a process called hydration. During hydration, individual cement particles react with each other and create a strong and durable solid phase. Most frequently, the hydration process is inefficient, resulting in extensive cracking, failure or poor adhesion of the cured cement. The active ingredients of SurfaMix C control the hydration process and prevent the shrinkage and subsequent failure of the final product. Simultaneously, an extended network of material fills the void volume of the cement and promotes surface adhesion and bonding. This also reduces surface dusting. The final SurfaMix C modified material remains visually unchanged, even though its elasticity and mechanical properties are enhanced. Individual nanoparticles exhibiting water repelling properties dress the pores of the mix and its reduce water absorption. This process results in renders, plasters or cement surfaces that are very resilient to weathering. For example, it prevents unwanted moisture, that may rise through the structure (i.e. rising damp) or penetrate from the outside (i.e. condensation). Finally, the cured cementitious mix is more durable against surface corrosion, negative water pressure, frost threat and extreme weather conditions. As a result, SurfaMix C modified cement surfaces last longer.

International Standards Testing

All measurement and testing were performed on portland cement mixtures cured for 28 days, unless otherwise stated. **Consistence determination of fresh mortar (ISO EN 1015-3):** Specimen Without SurfaMix C Addition: 17cm. Specimen With SurfaMix C Addition (10% w/w on cement): 16cm. **Adhesion bond strength of mortar (ISO EN 1015-12):** Specimen Without SurfaMix C Addition: 0,2 N.mm⁻². Specimen With SurfaMix C Addition (10% w/w on cement): 0,4 N.mm⁻² **Determination of workable life and correction time of fresh mortar (ISO EN 1015-09):** Specimen Without SurfaMix C Addition: 173min. Specimen With SurfaMix C Addition (10% w/w on cement): 281min **Determination of water absorption coefficient due to capillary action of hardened mortar (ISO EN 1015-18):** Specimen Without SurfaMix C Addition: 2,2.10⁻³ Kg/(m².min^{1/2}). Specimen With Latex (SBR) Addition: 1,2.10⁻³ Kg/(m².min^{1/2}). Specimen With SurfaMix C Addition (10% w/w on cement): 0,7.10⁻³ Kg/(m².min^{1/2}).

Application Note

Mixing: Add SurfaMix C directly in the cementitious mix, at a ratio of 5-10% by weight of the cement used. Alternatively, add 2,5 - 5 Kg of SurfaMix C for every 50 Kg of cement. Adding SurfaMix C can reduce or eliminate the use of other binding agents (e.g. lime) in the mix.

Surface Application: When placing a cementitious mix on top of an existing surface, enhance adhesion by applying SurfaMix C, using a roller or a brush. The application surface should be dry and clean. SurfaMix C can be diluted by up to 1:5 with water (1 part SurfaMix C and 4 parts of water).

For improved water repellency use SurfaPore C on dry cement based surfaces.

Physical properties

Milky white, water based emulsion with pH ~10. Boiling, ignition and autoignition point: >100°C. Density: 1,01 g.cm⁻³. Viscosity 2500 mPa.s

Safety & Storage

The product must not freeze. Can be stored in its original, sealed container for 18 months after production date. All tools can be washed with water after use. SurfaMix C is a non hazardous product, but as a precaution avoid contact with skin or eyes. Dispose this material properly. Keep out of the reach of children. In case of contact with eyes or skin, rinse immediately with plenty of water and seek medical advice. Always request, read and comprehend the Material Safety Data Sheet of the SurfaMix C before application.



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! Nano-sized 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. 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, Greece, Cyprus, Japan, Saudi Arabia, China, Japan, New Zealand and Australia.

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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 for the development, production and sales of chemical products for cleaning and protection of surfaces and nanotechnology products.

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