Project:

Industrial additive for the paint industry to produce a smart, functional, self-cleaning, photocatalytic cool paint

Product:

SurfaPaint Kirei Paste

Benefits:

Production of functional paints with the following characteristics:

- Keeps external wall clean from pollution, organic stains and mould growth
- Keeps interior walls clean from microbes, deodorizes and improves indoor air quality
- Activated by both solar and artificial indoor light
- Functionality is for the lifetime of the paint
- Cool paint - Reflects more than 95% of heat radiation (IR)
- Weather resistant and water repelling
- Excellent elasticity, opacity and coverage
- Excellent UV/alkali resistance
- Excellent colour stability and chalk resistance

Applications:

Additive during grinding stage of paint preparation

Color: White

Packaging:

200Kg Barrels
1000Kg IBC tanks

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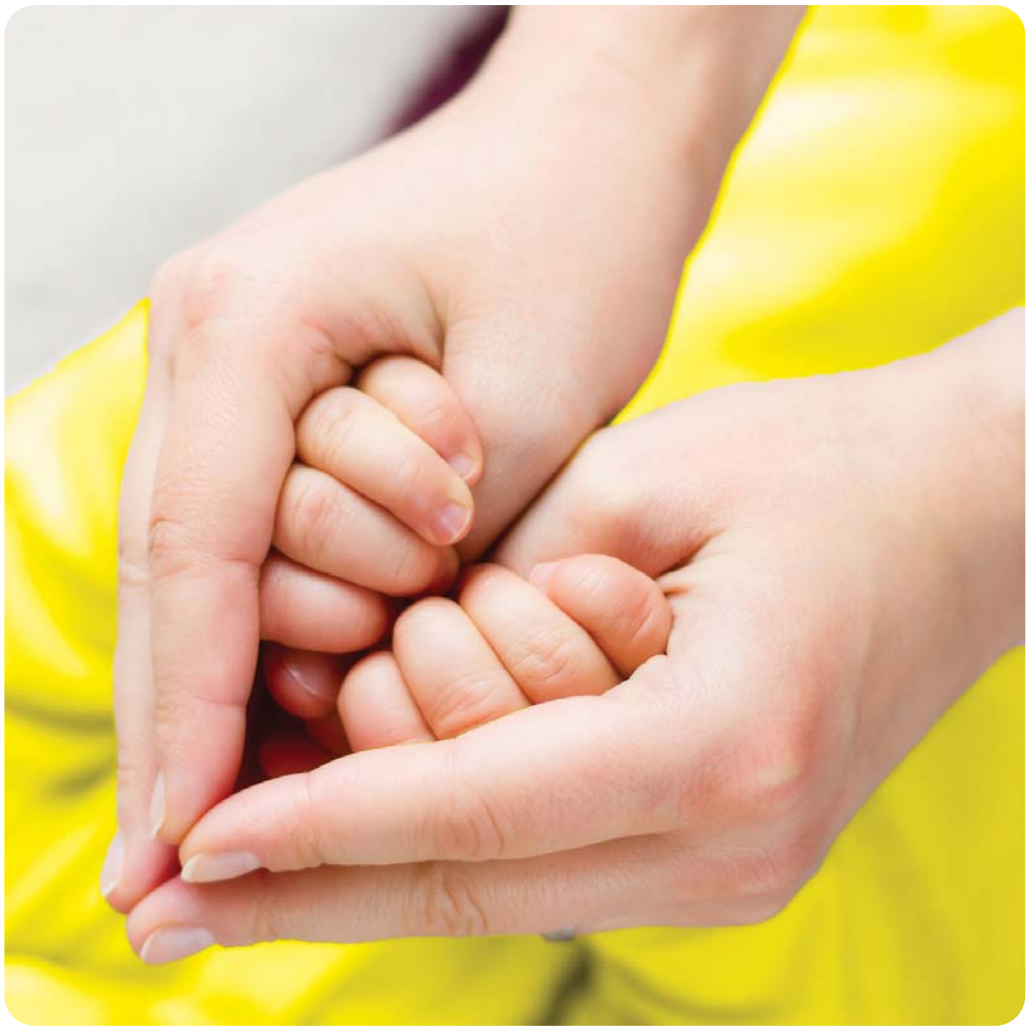

SurfaPaint Kirei Paste

Grinding Additive for the production of a Self-Cleaning & Deodorizing Cool Paint

Industrial additive for the paint industry to convert conventional paint formulations into smart, functional photocatalytic Cool Paints with Self-Cleaning properties. Easy to use and handle in a paste form, for the addition during the grinding process.

By harnessing the power of surrounding light, SurfaPaint Kirei titanium dioxide nanoparticles decompose organic stains, pollution and deodorize the air. Superior IR thermal radiation reflectance assures coolness and energy savings.

Make light work for the benefit of your favourite surfaces: Keep your paint ...Kirei!

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NanoPhos
Pioneering Nanotechnology

SurfaPaint Kirei Paints General Description

SurfaPaint Kirei Paste is inspired by the Japanese word Kirei that simultaneously means clean and beautiful. A SurfaPaint Kirei is a functional and intelligent paint. The titanium dioxide nanoparticles contained are activated with both solar and artificial, fluorescent light. This is a continuous process that remains active for the lifetime of the paint.

Solar activation provides important **Exterior Usage Benefits:** SurfaPaint Kirei decomposes organic stains, pollution and prevents mould growth. Therefore, the original, fresh look of a newly-painted surface remains long after application. Even under artificial light conditions SurfaPaint Kirei can provide significant **Interior Usage Benefits:** Sterilizes airborne or surface-bound microorganisms, deodorizes and improves indoor air quality.

At the same time, titania nanoparticles increase the whiteness and thermal reflectivity. When SurfaPaint Kirei Paste is added for the production of exterior paints, a **Cool Paint** results that reflects more than 95% of the incident InfraRed (IR) radiation, saving energy and reducing building heating/cooling costs. Reflectance values are further enhanced by the photocatalytic, self-cleaning effect and remain unchanged for a longer period of time when compared to a conventional paint. SurfaPaint Kirei Paste gives a weather resistant paint with exceptional coverage, opacity and resistance to UV radiation. All in all, SurfaPaint Kirei Paste offers an advanced, nanotechnology based functionality for the production of exterior or interior paints.

How SurfaPaint Kirei Paste is used?

SurfaPaint Kirei Paste is a special formulation that allows acrylic formulations to be transformed into functional, self-cleaning cool paints. Just before the addition of conventional titanium dioxide or fillers addition, during the grinding stage, SurfaPaint Kirei Paste is added in a mass quantity that accounts for 10%w/w of the final formulation. An indicative, high quality, starting point paint formulation can be the following:

	%w/w
Grinding Phase	
SurfaPaint Kirei Paste	10,00
Water	17,00
Preservatives	0,20
Rheology modifiers	0,20
Co-solvents	1,80
Titanium Dioxide/fillers	29,00
Let-Down Phase	
Acrylic resin	35,00
pH modifiers	0,20
Opacifier	6,00
Rheology modifiers	0,60
Total:	100,00

Storage: Store in a cool, dry, well ventilated area away from heat and direct sunlight. Carefully reseal partly used containers. Protect from frost. To avoid risk of spillage, always store and transport in a secure and upright position. The shelf life of the product in airtight containers is 18 months post production date. **Safety:** Keep out of reach of children. Do not use empty container for storing food. Avoid contact with skin and eyes. After contact with skin wash immediately with soap and. Do not use solvent thinners. In case of contact with eyes, rinse immediately with plenty of water and if necessary seek medical advice. If swallowed seek medical advice immediately and show this container or label. Do not empty into drains or watercourses. Dispose of empty container responsibly and according to local legislation. **VOC (Volatile Organic Compounds): Maximum VOC content of this product is 2 g/L.**

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, UAE, Iran, India, China, New Zealand, Japan 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.