

Project:

Thermal Insulating Paint for Ferrous Metallic Surfaces

Industry:

Building & Construction
Industrial thermal insulation
Heat exchangers
Transportation

Product:

SurfaPaint® ThermoDry
Metals

Benefits:

- Conserves energy
- Thermally insulates
- Self priming
Direct-to-Metals Paint
- Excellent adhesion/elasticity
- Withstands temperatures up to 150°C
- Prevents corrosion
- Extended lifetime
- Low VOC water-based paint
- Easy application on surface
- Excellent opacity and coverage
- UV and alkali resistant

Applications:

- Ferrous metal surfaces
- Industrial buildings
- Tubular heat exchangers
- Metal tanks
- Freight containers
- Metal pipelines

Packaging:

5L & 10L containers

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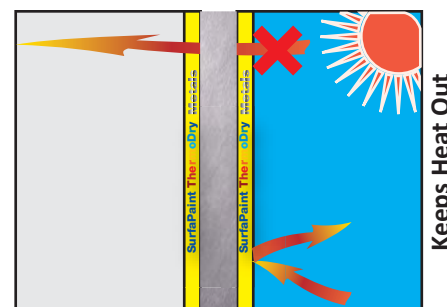
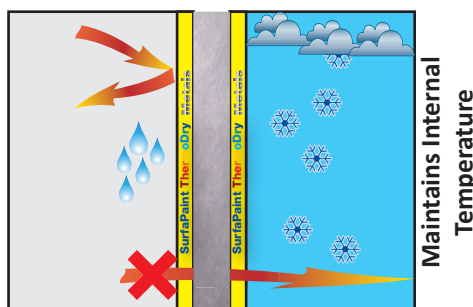


SurfaPaint®ThermoDry Metals

Water Based, Thermal Insulating Paint for Metals

Since thermal energy “travels” easily through metal surfaces, large amounts of energy are required for cooling or heating metal structures. SurfaPaint ThermoDry Metals paint does not only **reflect thermal radiation**, but also **resists heat transfer**! While reflection of thermal radiation (InfraRed region of light) is more than 90% (ASTM G173-03), thermal conductivity is reduced by 5 times (less than 0,1 W/(mK), EN 12667), in comparison to regular paints. SurfaPaint ThermoDry Metals also is a **water repelling paint**: The decreased water uptake increases the thermal insulating ability of paint. The result is improved energy efficiency and a reduced CO₂ footprint with tangible savings. SurfaPaint ThermoDry Metals can be applied on ferrous metal surfaces without a primer and withstands elevated temperature environments (up to 150°C). Its combined excellent surface binding and elasticity are effective in tolerating metal expansion in a high temperature environment.

The triple action of SurfaPaint ThermoDry Interior paint, i.e. thermal radiation reflectance, heat tranfer resistance and water repellence protects painted surfaces and improves energy efficiency.



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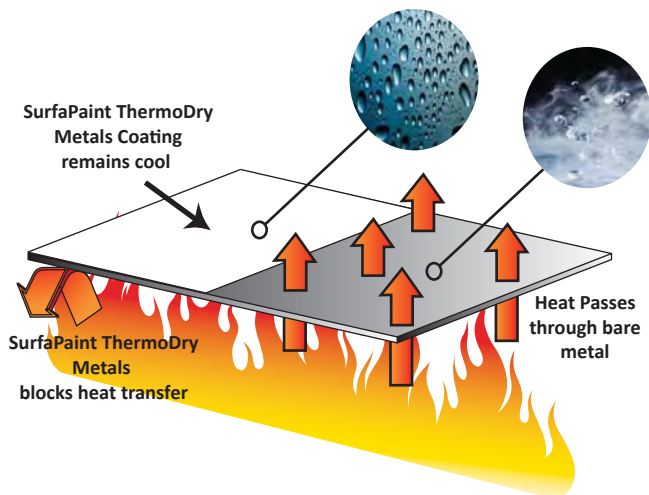
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Pioneering
Nanotechnology

SurfaPaint ThermoDry Metals Description

SurfaPaint ThermoDry Metals is a water based paint that can be directly applied on metal surfaces for thermal insulation and corrosion prevention. It is a unique all-in-one formulation of a high quality PU-modified acrylic paint and SurfaPore ThermoDry. How does it work? The paint consists of a rich mixture of high white-ness titanium dioxide and a resin that can withstand temperatures of up to 150°C. This composition delivers a high quality metals paint with significant benefits: Self-priming, excellent elasticity and adhesion, corrosion resistance, opacity and high coverage. SurfaPaint ThermoDry Metals also contains the ideal quantity of SurfaPore ThermoDry that assures all the benefits of a superior thermally insulating paint: Significant reduction in thermal conductivity, reflectance of thermal radiation (infrared) and decreased water absorption of the final coating.



International Standards Testing

Thermal Conductivity: $< 0,1 \text{ W}/(\text{mK})$, (EN 12667:2004). The corresponding value for a conventional paint is $0,50 \text{ W}/(\text{mK})$.

Thermal Reflectance: $>90\%$ Reflection of the InfraRed region of light (ASTM G173-03).

Liquid water permeability: "non-permeable" by water according to EN DIN 1062-3

Applicability: SurfaPaint ThermoDry Metals can be used directly on all types of ferrous metals. On non-ferrous metals such as aluminium and on freshly galvanised steel, a primer should be used. **Preparation:** Ensure all surfaces are clean and dry prior to application. Remove any loose rust or flaking paint with abrasive paper or a wire brush. Painted surfaces should be sanded prior to application. Remove any dust, dirt and degrease with white spirit. No primer is required. **Application note:** Stir well before application. If thinning is required add up to 5% water by volume. Apply 2 to 3 even coats using a good quality brush, roller or by spraying with a tip of a diameter 1,4mm or more. Do not over-brush. Ensure corners and edges are adequately covered. Additional coats should be applied 3 hours after the previous application. **Spreading Rate:** $8 \text{ m}^2/\text{L}$ per coat. **Drying Time:** Typically 1 hour depending upon coat thickness. Low temperatures and high humidity will lengthen drying times. **Cleaning of tools:** All tools and equipment should be cleaned immediately after use with water. **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 water. 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 EU VOC content limit value (Directive 2004/42/CE) of the product in a ready to use condition (category A/d "interior/exterior trim and cladding paints for wood, metal or plastic", Type WB): 130 g/L (2010). **Maximum VOC content of this product is 50 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, 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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