THERMIKOAT COOL ROOF

Waterproofing and ultra-reflective, stagnation-resistant and cold-flexible coating

Single-component water-based ultra-reflective waterproofing and protective coating for exteriors formulated with special structured elastomeric resins and enriched with nanotechnological aggregates with a high solar reflection index. Ready to use, resistant to stagnation and flexible at low temperatures. It guarantees the reflection of the sun's rays, decreasing the temperature of the substrate on which it is applied, favouring considerable energy savings in air conditioning, and increasing the efficiency of photovoltaic panels.

ADVANTAGES

- Special formula combining high solar reflectivity, stagnation resistance and cold flexibility.
- It contributes to the reduction of energy requirements for summer air conditioning, promoting energy savings and lowering the level of pollution in cities.
- In unconditioned buildings, it increases indoor summer comfort.
- Reduced roof surface temperature and diffuse light increase the efficiency of photovoltaic panels.
- Reduces the urban Heat Island Effect.
- High resistance to weather, UV and salt air.
- Can be applied over bituminous and slated membranes in good condition.
- Easy and quick application.
- *Solvent free* product.

YIELD

2.0 kg/m^2 if used as waterproofing;

COLOUR

Grey as 1st layer and White as 2nd layer.

PACKAGING

20 kg plastic buckets.
Pallets:

– 20 kg bucket - 48 buckets (960 kg).

FIELDS OF APPLICATION

Product designed for waterproofing and protective coating of flat or pitched roofs; horizontal, vertical or sloping surfaces. *Thermikoat Cool Roof Waterproofing* can be used on numerous substrates such as bituminous or slated membranes in good condition, concrete surfaces, wood, galvanized sheet metal, polyurethane foam panels. Product suitable for outdoor use.

STORAGE

The product must be stored in its original tightly closed containers, in a well-ventilated place, away from sunlight, water and frost, at temperatures between +5°C and +35°C. Storage time 12 months.

SUBSTRATE PREPARATION

The substrate must be completely hardened, dry and of sufficient strength. The surface must be thoroughly clean, dry and free of oil, grease, crumbling and loose parts or other materials that could impair the adhesion of the product. In cases where the surface is crumbly as a whole, scarify it completely until a good substrate is obtained and restore cracks or degraded parts with suitable mortar.

Ensure that the substrate has the right slope for the correct drainage of rainwater. Moisture that may be present in the substrate and steam that forms as a result of irradiation may affect the adhesion of the products applied. In the case of hydro-cleaning, wait for the substrate to dry completely. *Thermikoat Cool Roof Waterproofing* adheres to various types of substrates without the need for primer. However, it is advisable to carry out a preliminary test to check adhesion and the possible need to use a primer.

Concrete

In the case of new concrete substrate, it must be sufficiently cured and have completed adequate shrinkage. In the presence of deteriorated and crumbling concrete, provide restoration with *Rebuild[40] R4* mortar (see technical data sheet). In the case of smooth concrete, on non-wet substrates use *Grip Primer* (see technical data sheet). On damp substrates, in order to avoid blistering or detachment phenomena, use Vapostop (see technical data sheet) as primer. If the substrate is subject to rising damp, use *WATstop* (see technical data sheet). *WATstop* can also be used to fill small cracks or fissures. On rough concrete, use *Vapostop* primer (see technical data sheet).

Bituminous or slated sheathing

Ensure that the sheath has been applied for at least 6 months to prevent detachment caused by oil release. Ensure that overlaps are well adhered, in case of detachments, reinforce them with hot systems. Restore any cuts or holes, if present. Clean the sheath thoroughly, removing any paint or protective layers that are not well adhered. Provide for the installation of ventilation holes in the sheath, suitably positioned according to the humidity of the substrate. This is essential in the presence of very absorbent substrates that retain moisture, such as screeds lightened with polystyrene or expanded clay. All sheaths, whether worn or treated with paint that is well bonded to the substrate, must be primed with *SBS-bond* primer (see technical data sheet). In case of damaged sheathing, restore it with the sandwich system (*Thermikoat Cool Roof Waterproofing + Polites TNT + Thermikoat Cool Roof Waterproofing*) after priming the surface. The sandwich system should be used at overlaps and points where the sheath is most stressed.

Metal

Clean the surface thoroughly, removing dirt and any loose paint. Before applying *Thermikoat Cool Roof Waterproofing*, prime metal surfaces with *Grip Primer* (see technical data sheet). If rust is present, treat the surface with a suitable anti-rust product before applying *Grip Primer*. If the metal surface is painted, it is advisable to carry out a test to check the perfect adhesion of the system.

Wood

Thoroughly clean the surface by removing dust, brittle parts and loose flakes. The wood must be completely dry, well cohesive and dimensionally stable. On untreated wood surfaces proceed with direct application of the product. In other cases, carry out a preliminary test to check adhesion. On boards, matchboards or substrates with a high number of joints reinforce *Thermikoat Cool Roof Waterproofing* with a sandwich system (*Thermikoat Cool Roof Waterproofing + Polites TNT + Thermikoat Cool Roof Waterproofing*).

For supports not listed in the data sheet, please contact the Diasen technical department.

Treatment of joints and junctions

Expansion, control or insulation joints must be treated prior to application of *Thermikoat Cool Roof Waterproofing*. Joints should be filled with *Diaseal Strong* polyurethane sealant (see technical data sheet). In the wall-floor corner, a perimeter joint will be made with the same *Diaseal Strong* product. Once the sealant is completely dry, the joints should be waterproofed with Safety Joint Roll (see technical data sheet) impregnated with *Thermikoat Cool Roof Waterproofing*, applied with a brush, creating a

pool effect. Contact points with door and window thresholds should also be treated with *Diaseal Strong* sealant.

MIXING

Thermikoat Cool Roof Waterproofing is single-component and ready to use. In case of application by airless machine, dilute with maximum 10% clean water. Before applying, mix the product at low speed to avoid incorporating air until a homogeneous mixture is obtained. Never add foreign components to the mixture.

APPLICATION

Apply *Thermikoat Cool Roof Waterproofing* in 2 or more layers.

1. Wait for the primer to dry completely and apply a first layer of *Thermikoat Cool Roof Waterproofing* in **grey** with a short-hair roller or airless, ensuring total coverage of the surface. In the event of rain on a product that has not completely hardened, carefully check its suitability for subsequent coating.
2. When the first layer is dry (after approximately 5 hours at 23°C and 50% relative humidity), apply the next layer of in **white** colour using the same system, taking care to cross the two layers to evenly cover the surface.

Thermikoat Cool Roof Waterproofing can be applied with an airless **Graco TexSpray Mark V** machine. Dilute the product with 10% clean water, set the machine pressure to 150 bar and use nozzles 427 or 527.

DRYING TIME

At a temperature of 23°C and 50% relative humidity, the product dries completely in 5-7 hours.

- Drying times are influenced by the relative humidity of the environment and temperature, and can vary significantly.
- If the product is applied in thick layers, the drying time is significantly longer.
- Protect *Thermikoat Cool Roof Waterproofing* from contact with water and frost for at least 3 days after application at a temperature of 23°C and 50% relative humidity.
- If applied on metal substrates, *Thermikoat Cool Roof Waterproofing* dries more slowly.

SUGGESTIONS

- Do not apply at ambient and substrate temperatures below +5°C and above +30°C.
- During the summer season apply the product during the cooler hours of the day, out of the sun.
- Do not apply with imminent danger of rain or frost, in heavy fog or with relative humidity above 70%.
- Protect the product from driving rain until completely dry.
- Apply the product on completely dry surfaces.
- The product cannot be walked on, it can only be walked on for periodic maintenance.
- It is very important to provide expansion joints in the screed at regular intervals. The joints must be executed in a workmanlike manner.
- Before applying the product, we recommend covering any elements that are not to be coated.

CLEANING

The equipment used can be washed with water before the product hardens.

SAFETY

During handling, use personal protective equipment and follow the product's safety data sheet.

THERMIKOAT COOL ROOF WATERPROOFING

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* These data, although carried out according to standardised test methods, are indicative and may be subject to change as specific site conditions vary.

Technical Data *

Features			Unit
Yield	2,0 kg/m^2 as waterproofing 1,0 kg/m^2 as protective coating		kg/m^2
Aspect	liquid		-
Colour	Grey as 1st layer and White as 2nd layer		-
Dilution	Add max 10% water *only* for airless application		%
Application temperature	+5 /+30		°C
Waiting time between 1st and 2nd coat T=23°C; U.R. 50%	5		hours
Max humidity	70%		-
Drying time T=23°C; U.R. 50%	5 – 7		hours
Storage	12		months
Packaging	Plastic buckets	20	kg

** 1680 of weathering test is equal to about 10 years. This equivalence is merely indicative and it may change depending on the climate and the place where the product is applied.

Final performances			Units	Regulations	Result
Reflection		> 90%	-	-	-
Thermal emission (E)		91%	-	ASTM C1371	-
Solar Reflex Index (SRI)		109%	-	ASTM E1980	-
Surface temperature difference between a bitumen sheathing and an *Thermikoat Cool Roof Waterproofing* covered		~48	°C	-	-
Temperature difference outside - inside		12	°C	UNI 10375 UNI EN ISO 13791 UNI EN ISO 13792	-
Adhesion on slightly damaged bitumen membrane	Adhesion Test pull – off	> 7,0	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	Excellent
Adhesion on slated sheathing		4,3	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	Excellent
Adhesion on galvanised sheet metal		1,7	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	good
Adhesion on slate		2,5	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	good
Adhesion on polyurethane (PU) panel		1,5	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	good
Adhesion on plexiglass		2,0	MPa = N/mm^2	UNI EN ISO 4624 ASTM D4541	good
Waterproofing (positive pressure)		7,0	atm	UNI EN 8202/21	-
Weathering Test **		1680 (> 10 anni**)	ore	UNI EN ISO 11507	-
Resistance to 50 freeze-thaw cycles (-15°C/+15°C)		-	-	UNI EN 202	unchanged
Break Elongation Test		327%	-	ISO EN 527-3	-
Elongation at break after 3000 hours of accelerated ageing		166%	-	-	-
Direct tensile adhesion test on concrete		0,780	N/mm^2	UNI EN 1542	Type A/B breakage
Reaction to fire		classe B – s2, d0	-	UNI EN 13501-1	-
Resistance to stagnant water (9 months)		-	-	-	Very good
Flexibility *(Bend Test)*		12	mm	ISO 1519	-
Viscosity (Brookfield viscometer DV-E s04, 6 rpm, T= 20°C, R.H. 75%)		50000 - 65000	mPa · s	-	-

fig.1a

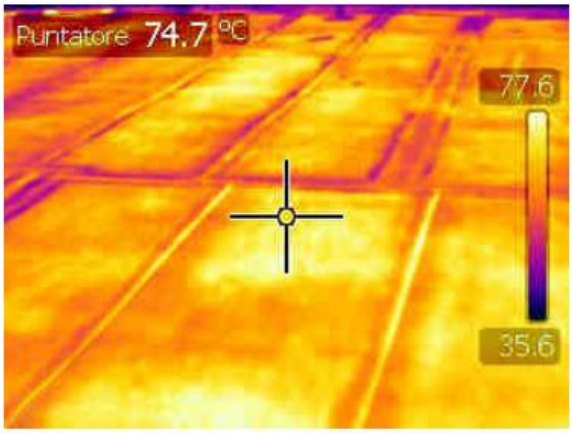

fig.1b

Situation before the intervention.
Images and temperatures taken with the thermal imaging camera (fig. 1 b)

fig.2a

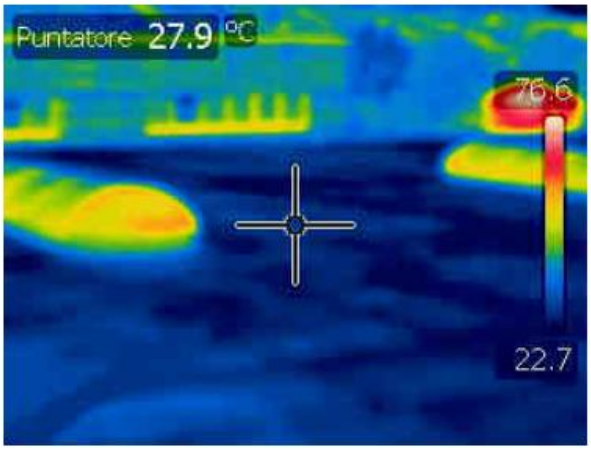

fig.2b

Situation after intervention with *Thermikoat Cool Roof Waterproofing* .
Images and temperatures taken with the thermal imaging camera (fig.2 b) – Δ**T = 46,8°C**.

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