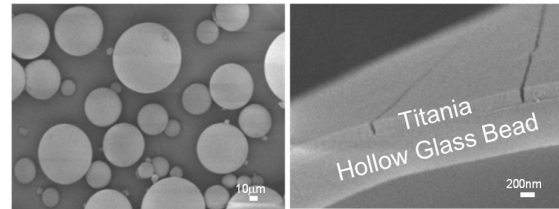


NIPO THERMOSHIELD+ Pigmented Thermal Silica Coating

DESCRIPTION

Nipo ThermoShield+ is designed through the state-of-the-art technology for excellent solar reflectance and **waterproofing** properties.

The “Unique Technology” in *NipoThermoShield+* ensures a longer lasting protection.



UNIQUE TECHNOLOGY

Nipo ThermoShield+ adopts a patented technology of “**culturing a layer of titania onto the shell of the hollow glass bead**”.

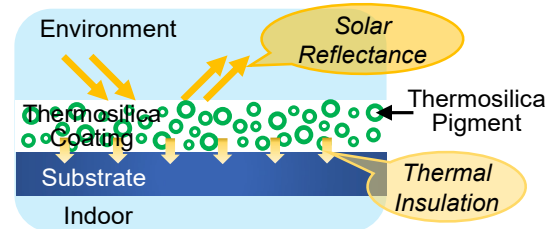
This unique technology makes use of core-shell structured titania coated hollow glass bead as pigment; bringing several distinct and unique advantages :

- ✓ It changes the high surface tensions of all hollow glass beads.

With a lower surface tension, the spallation of these beads from the paint is reduced/eliminated.

- ✓ Increased surface area of titania through “culturing” and hence, a lower dosage of TiO₂ in *NipoThermoShield+*. The reduction of TiO₂ slows the degradation of the organic component of the paint film.

The photocatalytic activity of titanium white pigments can lead to several degradation and breakdown of paint.



RECOMMENDED USES

- Old and new concrete or metal roofs
- Refurbishment of old roofs
- Roof tiles
- Vertical (concrete/brick) wall

APPLICATION

Surface Preparation

Ensure surface is clean from dust, oil, rust, grease, loose materials, moss etc. Surface should be dry for homogeneous material quality.

New concrete must be cured for at least 28 days.

Where required, treat all expansion joints, pipe joints and down pipes with *NipoClad Putty*.

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Protect the *NipoClad Putty* from rain and water when wet.

Nipo ThermoShield+ can be applied using brush, roller or sprayed.

POLYURETHANE MATERIALS ARE **NOT** COMPATIBLE WITH THIS PRODUCT.

Priming

Prime the surface with *NipoClad Primer*.

Where substrate is old and porous, prime twice.

Coating

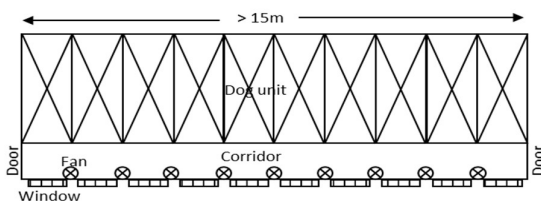
Once the priming coat is dry, apply the 3 neat coats of *Nipo ThermoShield+*; each coat at right angle to the previous coat.

Allow *Nipo ThermoShield+* to dry for 1 to 2 hours in between coats.

Protect from rain and frost until cured. Materials will be washed off when not fully cured.

ACTUAL FIELD RESULTS AT A SINGAPORE TRIAL SITE

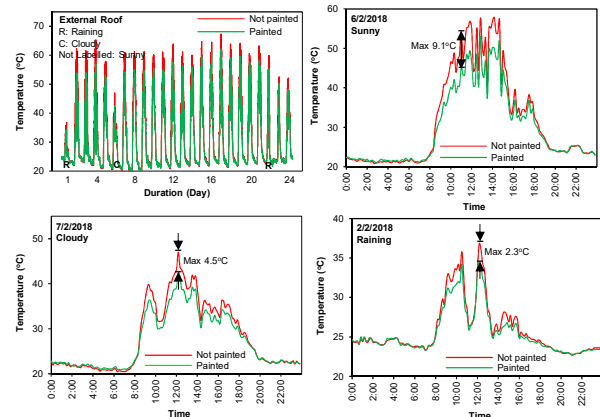
Schematic illustration of building structure :



- Size: L>15m, W~4m, H~3m (rough estimate)
- Flat metal roof coated with *Nipo ThermoShield+*

- Open space: 2 doors & many windows (all open)
- Many electric fans
- Temperature testing site: External roof
- Date: Nov 9, 2017 & Time: 10am-12pm
 - Address: Dog Unit, Singapore
 - Temperature: 32°C (Sunny)
 - Feel like: 38°C
 - UV Index: 10
 - Wind: NW 3 km/hour
 - Humidity: 66%

24-day Actual data logged :



These charts showed actual temperature variation over a 24- day period :

- On a sunny day, it is observed that the temperature between a *Nipo ThermoShield+* coated and non-coated external roof experiences a 5°C to up to 12°C variance

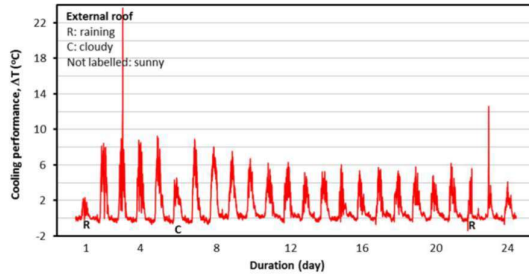
Please refer observations below :

- The higher the exterior temperature, the better the effect
- The effect is most significant on hotter days

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- It may increase the life guarantee of roof system
- Potentially, it reduces electricity consumption

- For best waterproofing result, a minimum of 3 coats will be required



22.8°C TEMPERATURE DIFFERENCE

Result : 1-day observation

Other Paint	ThermoShield+ Coated	Cooling Performance
64.9 ± 1.7	51.8 ± 1.3	Δ 13.1°C

As a waterproofing coating, *Nipo ThermoShield+* offers :

- UV resistance and good waterproofing properties
- Excellent adhesive strength to prevent peeling
- Excellent elongation to conceal hairline cracks
- A good sealant to fill building cracks

COVERAGE

- For vertical surface, the coverage is about 0.2 to 0.5L/m² per coat
- For roof (metal/concrete/tile), the coverage is about 0.5 to 0.8L/m² per coat

PACKING

Nipo ThermoShield+ comes in approx. 19kg (20L) pail.

NOTES

Actual Measurement may vary due to the condition of the substrate. This information is only a guide.

Special *PASTEL* Colours are available on demand.

TYPICAL PROPERTIES	
<i>Appearance</i>	White
<i>Thermosilica Pigment</i>	Average 50µm particle size
<i>Total Solar Reflectance</i>	Approx 80% (White)
<i>Elongation</i>	Approx 500%
<i>UV Exposure</i>	Good
<i>Drying Time</i>	Approx 1 hour to dry > 24 hours to cure
<i>Feel : By Touch</i>	Slightly Tacky when cured

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