Greenseal® Products (M) Sdn. Bhd. (152154-X)

GreenLabel SINGAPORE

CERTIFICATE NO: 032-093
ENVIRONMENTALLY FRIENDLY/ LOW VOC

GREENSHIELD 108®

Elastomeric Coating for Heat Insulation, Weathershield and Waterproofing

GreenShield 108

Greenshield 108 is an excellent energy conserving elastic membrane designed for roof coating and substrades requiring weather and waterproofing protection. Its membrane of water-based acrylic resin system is filled with minute heat shield cell which act as a thermally resistant blanke coveribg the whole treated structure. When applied, the ultraviolet and thermal conductivity between the substare and the coating. Hence, roof surfaces treated with **Greenshield 108** can experience. Interior temperature reduction up to 10oC. This roof also has excellent dirt pick-up resistance and is able to retain elasticity even after

GS1080	GS1086
GS1081	GS1087
GS1082	GS1088
GS1083	GS1089
GS1084	GS1090
GS1085	GS1091

All colour above base from GS Colour Code Library based from PANTONE, the colour printed may differ from the actual product color

MADE IN MALAYSIA

QUALITY SYSTEM SIRIM UKAS QUALITY MANAGEMENT 074
MS ISO 9001 : 2000 REG. NO. AR 2748

Greenseal Products (M) Sdn. Bhd. (152154-X)

Manufactured By:
GREENSEAL PRODUCTS (M) SDN. BHD.
No.5 & 7 Jalan 35/I0A, Taman Perindustrian IKS,
Mukim Batu Caves, 68100 Kuala Lumpur, Malaysia.
Tel: +603 - 6188 2298 Fax: +603 - 618 61298
E-mail: enquiries~greenseal.com.my
www.greenseal.com.my

GREENSHIELD 108™

Elastomeric Coating for Heat Insulation, Weathershield and Waterproofing

PRODUCT DESCRIPTION

Greenshield 108 is an excellent energy conserving elastic membrane formulated coating for roofs, walls and substrates that require weather and waterproofing protection.

Greenshield 108 is an eco-friendly "green" product which is safe for both the applicator and the environment. It is used for exterior as well as interior and suitable for all type of buildings.

FORMULATION DIFFERENCE

The water-based styrene acrylic co polymer resin membrane is filled with minute heat shield cells which act as a thermal resistant blanket covering the whole treated structure. Greenshield 108 is an IR reflective coating and it keeps building cooler. When applied, the Ultraviolet and heat rays are reflected and emitted from the surface, reducing the thermal conductivity between the substrate and the coating.

ENERGY SAVING AND THE ENVIROMENT

Greenshield 108 can give effects of reflectivity and emissivity to reduce the heat. Hence, roofs and walls surface treated with Greenshield 108 can experience good interior temperature reduction.

Metals for instance have high reflectivities but low emissivities, therefore the heat is retained longer, but by applying Greenshield 108 it reduces heat for the metals up to 12˚C - 14˚C (when temperature is taken directly from the soffit of the metal). While for concrete, which is of medium to high emissivities, applying Greenshield 108 will raised the emissivities higher. So the direct heat reduction is up to 6˚C - 8˚C depending on the thickness of the concrete.

Surfaces applied with Greenshield 108 will feel cooler than other normal surfaces applied with ordinary coating paints. Cool roofs can also helps to reduce urban temperature and as well as reducing the global warming.

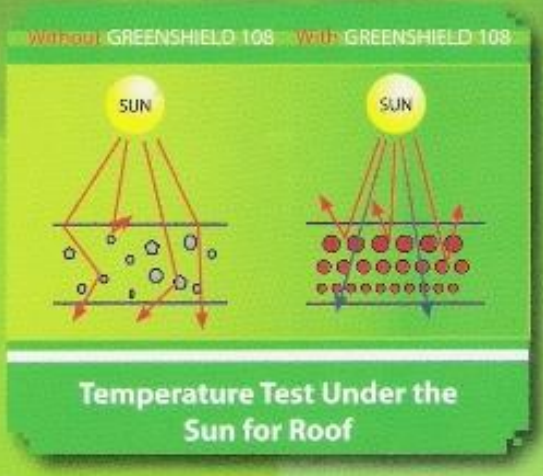
GREENSHIELD 108 PROVIDE **ENERGY SAVINGS, LONGER PRODUCT LIFE, COOLER BUILDINGS** AND **IMPROVING THE QUALITY OF LIFE** WHICH HELPS OF COURSE IN REDUCING GLOBAL WARMING.

COLOUR AS HEAT REFLECTOR

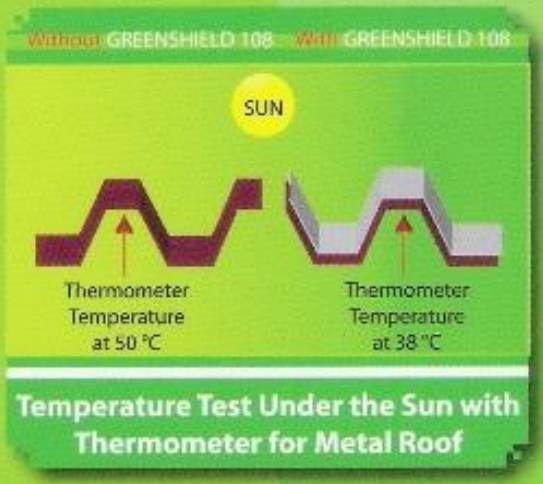
Although white is a cool colour, as well as a good heat reflector; it would not be able to satisfy many requirements from a design perspective in the building industry.

Greenshield 108 has many standard colours and the colour shades utilising a combination of IR-reflective pigments, which can help to minimise the effects of the sun and could improve the overall durability of the coatings. It is a special weatherable formulation which can withstand over years without significant degradation.

This will give long lasting dramatic effect, as its minute heat shield cells with infrared reflective pigment allows buildings to remain cool under the sun with an option of various colours.



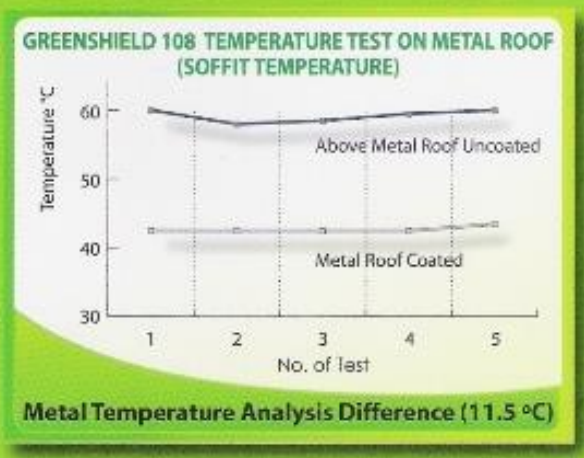
Temperature Test Under the Sun for Roof



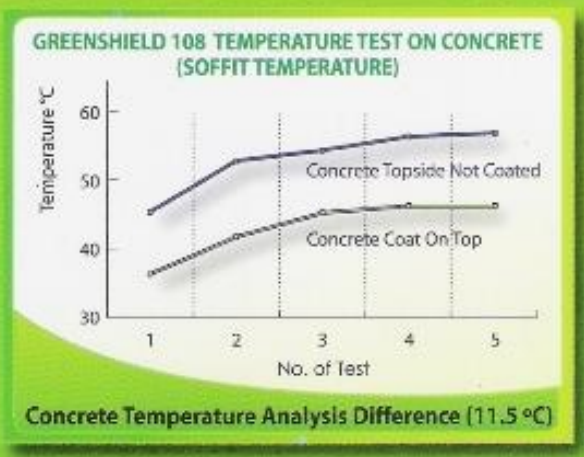
Temperature Test Under the Sun with Thermometer for Metal Roof

OTHER BENEFITS

Greenshield 108 has excellent dirt pick-up resistance and is able to retain elasticity even after aging. Coatings appear new after many years of exposure. In addition, it is also has a good crack sealing ability for concrete surfaces.



Metal Temperature Analysis Difference (11.5 °C)



Concrete Temperature Analysis Difference (11.5 °C)

USAGE

Greenshield 108 is mostly used as wall and roof coatings.
However, it may also be applied as:

- Coatings for roofs, terraces and balconies.
- Waterproofing membrane on top of outdoor tiling.
- Protective heat reflection coating and waterproofing for metal roofs.
- Protection and waterproofing for old asbestos roofing sheets.
- Protection and waterproofing for new AC roofing sheet.
- Decorative coatings for walls.
- Protection and waterproofing for clay and cement tile roof.

COLOUR AS HEAT REFLECTOR

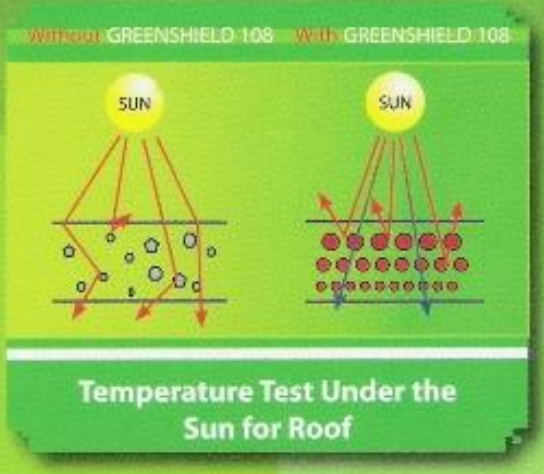
Although white is a cool colour, as well as a good heat reflector; it would not be able to satisfy many requirements from a design perspective in the building industry.

Greenshield 108 has many standard colours and the colour shades utilising a combination of IR-reflective pigments, which can help to minimise the effects of the sun and could improve the overall durability of the coatings. It is a special weatherable formulation which can withstand over years without significant degradation.

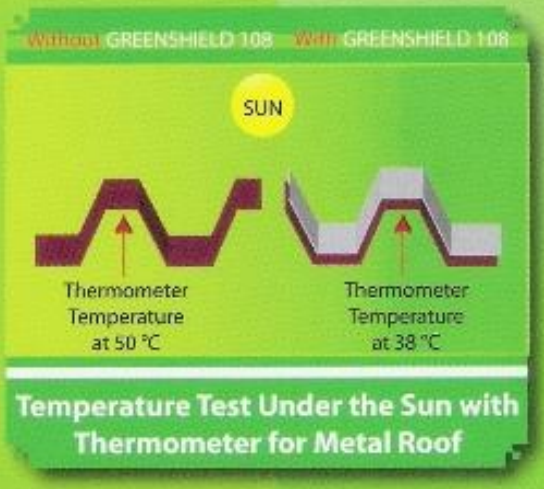
This will give long lasting dramatic effect, as its minute heat shield cells with infrared reflective pigment allows buildings to remain cool under the sun with an option of various colours.

OTHER BENEFITS

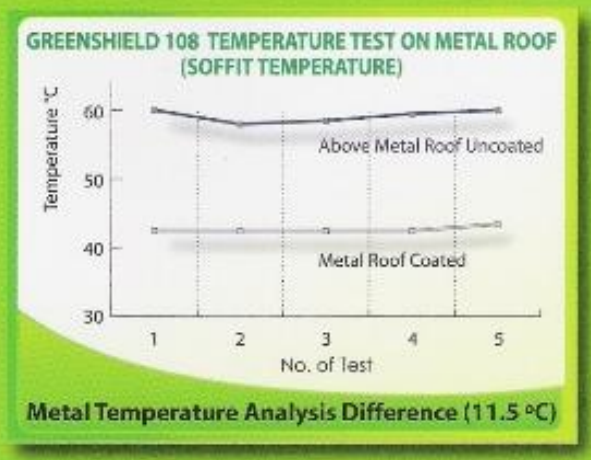
Greenshield 108 has excellent dirt pick-up resistance and is able to retain elasticity even after aging. Coatings appear new after many years of exposure. In addition, it is also has a good crack sealing ability for concrete surfaces.



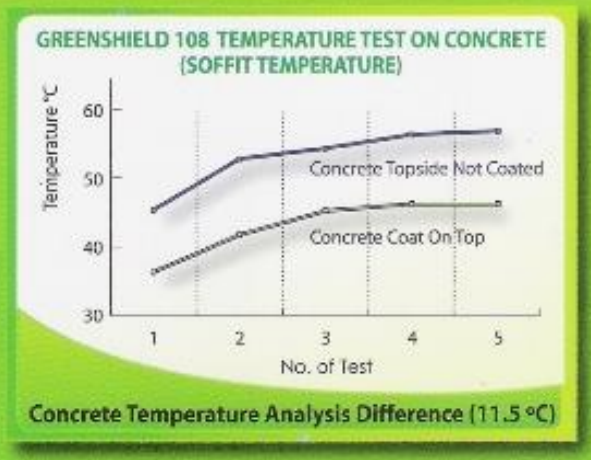
Temperature Test Under the Sun for Roof



Temperature Test Under the Sun with Thermometer for Metal Roof



Metal Temperature Analysis Difference (11.5 °C)



Concrete Temperature Analysis Difference (11.5 °C)

USAGE

Greenshield 108 is mostly used as wall and roof coatings. However, it may also be applied as:

- Coatings for roofs, terraces and balconies.
- Waterproofing membrane on top of outdoor tiling.
- Protective heat reflection coating and waterproofing for metal roofs.
- Protection and waterproofing for old asbestos roofing sheets.
- Protection and waterproofing for new AC roofing sheet.
- Decorative coatings for walls.
- Protection and waterproofing for clay and cement tile roof.

TECHNICAL DATA

TEST ITEM	RESULT	TEST METHOD
INSULATION:		
Total Solar Reflectance (TSR)	82.2	C1549 & E903-96
Emissivity	0.91	C1371-04a & E408
Solar Reflective Index (SRI)	103	Shepherd - USA
Thermal Conductivity	0.01888 W/m2K	ASTM C518:1991
Emittance	0.68 ε	ASTM C1371:2004A
Solar Heat Reflectance	99.3%	ASTM E903:1996
Flame Retardant	PASS - Class One Surface Spread of Flame	BS 476:Part 7:1997
Flash Point, °C (COC)	No Flash Point Detected	ASTM D92
Soffit temperature Difference	Reduce up to 10 - 15°C	Greenseal laboratory
Accelerated Weathering	PASS - No Cracking	Greenseal laboratory
WATERPROOFING:		
Solid Content	68.30%	ASTM D1644-01
Specific Gravity	1.085	ASTM D1478
Elongation	566.6%	ASTM D638
Tensile Strength	8.8 Mpa	ASTM D638
Crack Bridging	Bridges gap to 2mm	Greenseal laboratory
Hard Drying Time	45 minutes	Greenseal laboratory
VOC Content	<10g/L	ASTM D3960

COVERAGE

WATERPROOFING SYSTEMS	AS PAINT & HEAT INSULATION	AS WATERPROOF & HEAT INSULATION
1st Coat Greenshield Primer	- 10m² / Litre	- 10m² / Litre
2nd Coat Greenshield 108	- 5m² / Litre	- 3.3m² / Litre
3rd Coat Greenshield 108	- 5m² / Litre	- 3.3m² / Litre
Thickness after application	**1.0 mm**	**1.1 mm**

* Coverage is theoretical and may vary due to different substrates.

FEATURES AND BENEFITS

- Heat insulation thus energy saving and electricity bills i.e. reduces use of air conditioning and as a result reduces urban temperature.
- Waterproofing protection.
- Self-seals any hairline cracks.
- Eco friendly product thus is safe in usage and helps in environmental protection.
- Ultraviolet resistant.
- Good elongation.
- Good adhesion to variable substrates.
- Non toxic and solvent free.
- Aesthetically pleasing colour options.
- Longer potential life-cycle due to less polymer degradation and thermal expansion due to lower temperature.
- Cooler to the touch for better ergonomics.
- Provides excellent resistance to waterborne chemicals such as sulphates and chlorides and air barrier.
- Long lasting protection against algae, fungus and mould.
- Excellent elasticity, durability and high performance.

SAFETY INFORMATION

Keep out of reach of children.

Keep containers tightly closed.

It is recommended that the applicator wears safety goggles and gloves. Keep away from mouth and eyes.

In case of skin contact, wash areas with soap and water.

In case of eye contact, rinse thoroughly with clean water. Seek medical attention immediately if irritation persists.

Agent and Distributor:

WARRANTY

Greenseal Product (M) Sdn Bhd warrants that its products are free from manufacturer defects and, when applied in accordance with the current specification and application instructions will perform as so stated in its product literature. Because methods and conditions of use are beyond the control of Greenseal Product (M) Sdn Bhd, no guarantee, expressed or implied can be given as to the results of application.

Greenseal™ Products (M) Sdn. Bhd. (152154-X)

GREENSEAL PRODUCTS (M) SDN. BHD. (152154-X)

Lot 5 & 7, Jalan 35/10A,
Taman Perindustrian IKS,
Mukim Batu Caves,
68100 Kuala Lumpur, Malaysia.

Tel : 603 - 6188 2298
Fax : 603 - 6186 1298
E-mail : enquiries@greenseal.com.my
Website: http://www.greenseal.com.my

QUALITY SYSTEM SIRIM
UKAS QUALITY MANAGEMENT 074

MS ISO 9001: 2000 REG. NO. AR 2748

Greenseal is certified by MS ISO 9001: 2000 Quality Management System