

Advanced Waterbased Coating Systems for Metal Roofing



www.abolinco.com

Cool Barrier Technology

High solar reflective Cool Technology which noticeably combines the improvement of thermal comfort conditions with the reduction of energy consumption for cooling.

Benefits of Cool Metal Roofs

There are many benefits of owning a cool metal roof. Here are just a few to consider:

Energy Efficient

Metal roofing is on the leading edge of technology with a wide variety of finishes, designs and colors that provide greater energy savings compared to most other non-metal roofing products on the market today.

Sustainable

Metal roofing is sustainable. It contains significant recycled content. It lasts much longer than most non-metal roofing products. It is 100% recyclable at the end of its useful life.

Low Life-Cycle Costs and Durable

Metal roofing has been proven to be more durable than most other roofing systems available. As a result, metal roofing has low life-cycle costs making it the choice of many schools, government, commercial, industrial and institutional building owners.

Fire and Wind Resistant

Metal roofing is extremely fire resistant and can be designed to withstand strong winds.

Lightweight

Due to its light weight per unit area, structural savings can be realized in a building when compared to using heavier non-metal roofing alternatives. For re-roofing projects, metal roofing can often be applied over the original roof, saving removal and disposal costs.



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What is A Metal Roof?

Metal roof is a roofing system using metal sheets or tiles as the waterproofing layer. There are different types of metal roof which suit different building forms and structures. Metal roofs can be applied on top of existing roofs, on boarded roofs, or for most systems directly onto roof purlins.

Characteristics

Base: Metal roofs are typically formed from galvanized steel or aluminium and usually have a pre applied coating to provide corrosion resistance as well as aesthetics. Steel is typically galvanized with either a zinc or zinc/aluminium based coating before the factory-applied paint coating.

Form: There are many different profiles and styles available. Metal roofing can be classified in three categories: corrugated, standing-seam and 3D-profile

Corrugated roofing: Typically used for larger buildings, but equally used in some small projects and for general sheeting applications, corrugated roofing sheets are typically around 1000mm wide and can be supplied either in standard lengths to cut on-site or, more usually, factory-cut to the right length. Although most sheets would typically be cut to 3m – 6m lengths, they can be manufactured to any length. The traditional corrugation is a sinusoidal profile, although this has largely been replaced by the more efficient trapezoidal or box-profile. Sheets are generally fixed to the sub-frame with through-fixings and can be used on roof pitches as low as 5 degrees.

Standing seam: The traditional form of metal roofing, as used for copper, zinc or lead roofs, joins sheets using a crimped standing seam. Fixings are rolled into the seam, so that there is no penetration of the outer sheet. Standing seam metal roofing can be used on very low pitch roofs. Standing seam metal roofing is generally applied on fully supported (boarded or sarked) roofs, although some systems, usually with stiffening ribs and sometimes taller standing seams, are available which are self-supporting. Standing seam metal roofing is widely used on residential commercial and public buildings.

3D-profile metal roofing: Metal roofing is available with a profile to give the appearance of tiles, slates or shingles. There are various profiles available to match the various tile profiles used.

These are available in two types: long sheets which run down the roof slope and are installed in a similar fashion to corrugated roofing; or smaller sheets which are typically one tile high and several tiles wide. The latter are installed in a similar fashion to traditional tiles, with an overlap between sheets.

Cool Barrier Waterbased advanced Metal Systems

Epoxy Hydroprimer, Cool Barrier Roof, Cool Barrier Roof Optimum

A. System: Epoxy Hydroprimer, Cool Barrier Roof

METAL

EPOXY HYDROPRIMER

D.F.T 100 Microns

COOL BARRIER ROOF

D.F.T 500 Microns

B. System: Epoxy Hydroprimer, Cool Barrier Roof, Cool Barrier Protecta Clear

METAL

EPOXY HYDROPRIMER

D.F.T 100 Microns

COOL BARRIER ROOF

D.F.T 400 Microns

COOL BARRIER PROTECTA
CLEAR

D.F.T 75 Microns

Abolin Co, Cool Barrier Waterbased coating systems are based on premium and environmentally friendly technologies, which fulfill the needs of the metal roofing into the field of the residential, commercial, public and industrial buildings. The benefits of these proposed technologies support solution in terms of:

- Saving Energy by reducing the needs for cooling
- Contributing to “Urban Heat Island” mitigation
- Mitigating the consequences of the Global Warming phenomenon
- Creating thermal comfort conditions
- Saving money by reducing the billing costs for energy
- Decreases the stress heating of the construction
- Increasing the durability of the roof and minimizing the cost for restoration

Epoxy Hydroprimer

Environmental protection is a key issue in our society. The desire of many consumers for toxin-free Environmental protection is a key issue in our society. The desire of many consumers for toxin-free products, and the strict regulations now in place, mean that chemical manufacturers are constantly faced with the challenge of creating ever more environmentally friendly substitutes. With its Waterpoxy range, Abolin Co is able to offer solutions that point the way forward.

- Non-flammable/non-explosive
- Low free-amine content, significantly reducing the health risk to production workers and craftsmen
- Equipment can be cleaned with water instead of the solvent required in the case of conventional coating systems
- Can be thinned with water
- Can be applied directly to wet concrete
- Highly water breathable
- Environmentally and user friendly



Cool Barrier Hydroprimer offers very good protective performance even on untreated metal sheets, light alloys, galvanized sheets. However, the best protective performance is obtained on sandblasted substrates. Several lab tests have shown corrosion resistance varying from 250 up to 700 hrs according to type of substrate (smooth or rough Q panel, mechanically rubbed down). Of course, much better results are obtained on sandblasted surfaces.

GENERAL FEATURES

Two component anticorrosive primer based on water-borne epoxy resins. It forms a film that has strong resistance to aggressive chemical agents, solvents, salt and sweet water and corrosion.

The primer possesses excellent adhesion on most metal supports.

In order to get resistance to aggressive chemical agents and water in worst-case conditions apply the product in several coats.

The product is easy to apply. It should be diluted with tap water.

<u>Performance</u>	at 25°C:
<u>Solvent content, %</u>	3.2
<u>Pot-life, hours</u>	> 2
<u>Tack-free time (100 microns wet), minutes</u>	25 – 30
<u>Overcoatability interval, hours</u>	1 – 48
<u>Through cure time, days</u>	1 - 2
<u>Full curing, days</u>	7

HANDLING AND STORAGE

The primer and its hardener are not frost-resistant; therefore it is advised to store these products at temperatures varying from +10°C to +35°C maximum. Storage life in original package: 8 months.

MIXING RATIO

For application mix the products in the following proportion: **100 kg of Component A + 9 kg of catalyst B**

THEORETICAL COVERAGE

Considering that the theoretical spreading rate of the mixed product at 1 micron is 300-400 m²/kg., if you apply 100 microns, you can paint about 3 - 4 m²/kg.

NOTES:

After addition of the hardener the pot-life of the product lasts for about 2 hours at 25°C.

DO NOT USE the product after this period, even if there is no increase of viscosity or/and gelling evident.

Calculations of VOC (gr/l): (100-Non volatile%-Water%): 43 -100

Cool Barrier Roof

Abolin Cool Barrier Roof for low slope and steep Roofs is an excellent quality waterbased elastomeric waterproof coating based on a “cool” raw materials technology. It forms an extremely high reflective mat surface that blocks the incoming solar radiation and remains cooler, contributing to the saving of energy for cooling needs. It is specially formulated to retain its elasticity, even in low temperatures ranging between -20°C to 80°C. ASTM 6083 Compliant.



Performances:

<u>Volume Solids</u>	ASTM D 2697	70, 08%
<u>Weight Solids</u>	ASTM D 1644	64, 87%
<u>Initial Tensile 0°F</u>	ASTM D 2370	606, 7 psi
<u>Initial Elongation 0°F</u>	ASTM D 2370	102, 8%
<u>Adhesion to Spayed Polyurethane Foam</u>	ASTM D 903	7, 134pli
<u>Adhesion to Etched Galvanized Steel</u>	ASTM D 903	4, 309pli
<u>Fungi Resistance</u>	ASTM G21	Zero Rating
<u>Water Swelling</u>	ASTM D 471	5, 65%
<u>Permeance</u>	ASTM E 96	8, 09 perms
<u>Solar Reflectance</u>	ASTM E903-96	0, 89
<u>Infrared Emittance</u>	ASTM E408-71	0, 89
<u>Solar Reflectance Index</u>	ASTM E 1980-01	113

Special Characteristics

- Reduces the surface temperature of the building envelope
- Improves indoor thermal comfort conditions
- Saves money by reducing the needs for cooling
- Contributes to atmospheric pollution reduction
- Contributes to confrontation of “Thermal Heat Island” phenomenon
- A barrier to ultraviolet light which prevents degradation of the roofing substrate.
- Resistance to asphalt staining ("bleed through" resistance).
- Excellent dirt pick-up resistance.
- Excellent flexibility at temperatures as low as 0° C (below the temperature at which unmodified asphalt becomes brittle).
- Application by spray, brush or roller
- Max 10 g/litter volatile organic components.

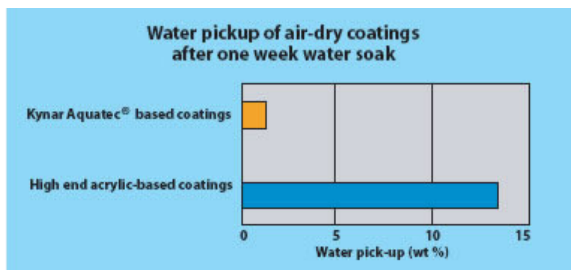


Cool Barrier Protecta Clear

COOL BARRIER PROTECTA CLEAR is a low-build elastomeric clear protective top coating based on supreme water based PVDF binder that provides the ultimate in reflectivity, color stability and weather resistance over new or existing roof surfaces. Although it is highly flexible, it exhibits tough, enamel like finish that resists abrasion, biological growth, dirt, oil and all types of weather extremes.

Outstanding Water Repellency

Coatings based on Kynar Aquatec® have excellent water repellency and prevent water from penetrating the surface. Even after 200 hours of immersion, the Kynar Aquatec® coating shows minimal water pick-up. Kynar Aquatec® emulsion-based coatings have excellent substrate adhesion and resist delamination and water damage.



- Excellent Long Term Color Retention
- Excellent Long Term Gloss Retention
- Excellent Resistance to UV Degradation
- Excellent Resistance to Chalking
- Outstanding Dirt Pick-Up and Stain Resistance
- Excellent Resistance to Algae and Fungal Growth
- Excellent Resistance to Chemicals and Corrosion
- Excellent Resistance to Abrasion
- Excellent Flexibility

ABSOLUTE PERFORMANCES

COOL BARRIER PROTECTA CLEAR is an innovative technology based on acrylic-modified Kynar® PVDF resin in a convenient emulsion form. Liquid coatings formulated with Kynar® Aquatec™ deliver the durability and performance of traditional Kynar®PVDF coatings. These coatings can be easily applied to a variety of substrates, including metals, PVC, sprayed-in-place polyurethane foam and as a finish over acrylic basecoats.

Excellent Dirt Shedding

COOL BARRIER PROTECTA CLEAR pick up very little dirt. This resistance is important for all colors, but none more so that white. Figures 1 and 2 show the dirt shedding performance of COOL BARRIER PROTECTA CLEAR treated coatings compared to conventional acrylic roof coatings (not treated).

Acrylic coating emulsion-based coating
Figure 1



Cool Barrier Protecta Clear
Figure 2



Cool Barrier Technology Fights Global Warming!

Country	CO ₂ emission in 1990 Mt	Kyoto's reduction commitment (%)	Requested white reflecting surface to fulfill Kyoto's goal (km ²)	Cool Barrier Roof White surface necessary to compensate for all CO ₂ emission (km ²)
Austria	59,20	8	113,66	1.420,80
Belgium	113,40	8	217,74	2.721,72
Bulgaria	82,99	8	159,34	1.991,76
Canada	457,44	8	658,72	10.978,58
Denmark	52,10	8	100,03	1.250,40
Estonia	37,79	8	72,57	907,13
Finland	53,90	8	103,49	1.293,60
France	366,53	8	703,75	8.796,86
Germany	1.012,44	8	1.943,89	24.298,63
Greece	82,10	8	157,63	1.970,40
Ireland	30,71	8	58,98	737,26
Lettonia	22,97	8	44,11	551,42
Liechtenstein	0,20	8	0,40	4,99
Luxemburg	11,34	8	21,78	272,23

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