

Elastoclad® HR

A WATERPROOF AND HEAT REFLECTIVE CERAMIC COATING

DESCRIPTION

Elastoclad HR is a 100% acrylic waterproofing and heat reflective coating which is formulated with hollow core ceramic microspheres to dissipate and reflect solar radiation and also provide a long lasting elastomeric waterproof coating. The ceramic coating technology was developed originally for NASA space shuttles during re-entry to the atmosphere, the benefits provided are therefore substantial".

Elastoclad HR complies with the requirements of EN 1504-2 as waterproof coating.

USES & ADVANTAGES

Elastoclad HR may be used on metal roof decks, silos, storage tanks, cold storage facilities, metal wall surfaces and electrical equipment boxes, concrete roofs and walls. Suitable surfaces to apply to include concrete, metals, timber, asbestos cement and brickwork.

Advantages Include:-

- Deadens sound, resists hail damage, and is fungus resistant.
- Can be applied on most common building materials.
- Resistant to chemicals and deterioration from hot weather conditions.
- Non yellowing, abrasion resistant UV stable waterproof coating.
- Reduces radiant heat transmission from external surfaces by up to 92%.
- Reduces dramatically surface temperatures with less stress due to substrate movement and hence longer roof life.
- Safe and easy to use.
- Produces equivalent radiation heat insulation of up to 150 mm. of conventional fibreglass or styrofoam.
- An R rating of 20 in terms of heat gain.
- Temperature in roof space may be reduced by 20°C and result in a 30% decrease in load on an air conditioning system.
- Protects metals from rust corrosion and concrete from carbonation.
- Reduces required size of air conditioning plant in new building or reduces load by 30-40% in old buildings.
- The cured waterproof membrane is elastomeric and can tolerate substrate movement without cracking or flaking.
- Testing has shown that the ceramic coating reduces zincalume temperatures by up to 17°C, colour bond by 22°C, concrete tile surface temperatures by 20°C and can reduce 14°C off white colour bond surfaces.
- Protects metals from rust & corrosion.
- Stabilises rusty steel halting rusting.
- Reduces thermal shock and hence metal fatigue and increases the working life of the roof.
- Suitable for protection against ingress (Principle 1, method 1.3 of EN 1504-9).
- Suitable for moisture control (Principle 2, method 2.3 of EN 1504-9).
- Suitable for increasing the resistivity (Principle 8, method 8.3 of EN 1504-9).

PHYSICAL PROPERTIES

Appearance: Low sheen
Specific gravity : 0.86 ± 0.05
Cure time : 2-4 hours
Volume solids : Approx. 60%
Elongation : 150-200% at 25°C, ASTM D-412
Colour : White, others on request
Water Vapour Permeability: 2.5 x 10⁻⁵ gm/mm²/24 hrs
 ASTM D1653

Test Performance Data R Value: 20
 ASTM C-177

Accelerated Weathering: No sign of thermal degradation
Q.U.V 3000 hrs
 ASTM G-53

Water Absorption: 0.001 %
 ASTM D570

Thermal Conductivity Comparisons:

The K value of various common building materials is shown below which provides the heat transfer property or the thermal conductivity of the material. The higher the K value the faster heat is transferred through a particular material.

<u>Material</u>	<u>K Value</u>
Copper	386.00
Aluminium	204.00
Steel	54.00
Marble	3.00
Concrete	1.00
Brick	0.70
Asbestos	0.17
Wood	0.11
Elastoclad HR	0.19
Glass Wool	0.04

Reflectance of Roof Materials :

<u>Material</u>	<u>Solar Reflectance</u>	<u>Temperature of Roof over Air Temp. (°F)</u>
Bright white coating (ceramic, elastomeric) on smooth surface	80%	15°
Elastoclad HR	70-80%	15-25°
White membrane	60-70%	25-36°
White metal		
Bright white coating (ceramic, elastomeric) on rough surface	60%	36°
Bright aluminum coating	55%	51°
Premium white shingle	35%	60°
Generic white shingle	25%	70°
light brown/grey shingle	20%	75°
Dark red tile	18-33%	62-77°
Dark shingle	8-19%	76-87°
Black shingle or materials	5%	90°

Source : Oak Ridge National Laboratory, Lawrence Berkeley National Laboratory, and the Florida Solar Energy Center.

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SURFACE PREPARATION

CONCRETE - Remove all debris and contaminants from the surface. Optimum preparation will be achieved by high pressure water blasting (1,000 psi). If water blasting is not possible, ensure the substrate is sound and carry out repairs using a polymer modified repair material **Conpatch** from Cormix. Upstands, pipes, penetrations, roof fixing, joints etc. must be detailed and flashing used as appropriate. Ensure there is no moisture trapped in the concrete, if moisture is present dry or apply **Contite Moisture Barrier** at a min. of 300 microns D.F.T. in 2 coats. Allow any repaired areas to cure before coating, prime the entire surface using **Elastoclad Clear Sealer Primer** before applying the **Elastoclad HR**.

METAL - Inspect metal surfaces for any signs of corrosion. Corroded areas must be thoroughly cleaned and mechanically prepared to remove all rust scale and surface contaminants. Apply suitable anti-corrosive metal primer to entire surface area and allow minimum 4 hours to cure e.g. **Congard ST** before top coating. For metal sheets such as zincalume apply etching primer such as **Elastoclad 160 Primer** before coating. Proper preparation of the roof deck is essential to the long term performance of any roofing system. Any concrete and metal roofs with existing asphalt, bituminous or water based coatings must be water jet power-washed or scraped to assure proper adhesion of the **Elastoclad HR Waterproof Ceramic Coating System**.

Furthermore, metal roof areas subject to surface rust should be treated with **Congard ST**. This will protect the long term integrity of the affected areas to prevent further rust deterioration.

Metal roofs with loose and defective bolts, screws, and fastener heads must be tightened or replaced and sealed. All loose seams should be secured with additional fasteners or lap screws. Finally, any open seams which remain must be sealed with **Conflex LM** or reinforced with **Elastoclad** and **Elastocloth** polyester membrane fabric to ensure a strong and durable waterproofing seal protection over areas subject to thermal movement and shearing activity.

Once all fasteners, seams and openings are properly sealed, the metal deck is watertight. The roof should now be coated using **Elastoclad HR**.

APPLICATION

Elastoclad HR may be applied using a brush, roller or airless spray. In some circumstances, particularly if applying by airless spray equipment, the viscosity of **Elastoclad HR** may warrant the addition of 5-10% of water for improved spray viscosity.

In accordance with conventional good coating practices, it is recommended **Elastoclad HR** be applied in 2 coats to avoid pin holing and other imperfections that may result due to surface variations.

RECOMMENDED THICKNESS

The optimal thicknesses are as follows applied in 2 coats. These will also provide long life in various atmospheric conditions.

Surface	Min. DFT
Metal Wall Cladding	300 micron
Metal Roof Deck	500 micron
Cement Wall Render	500 - 700 micron
Concrete Roof Deck	1.0 mm
Asbestos Roof	300 micron

APPROXIMATE COVERAGE RATE

7.45 m² per US Gal @ 300 micron DFT (0.51 litre/m²)

5.59 m² per US Gal @ 400 micron DFT (0.67 litre/m²)

4.47 m² per US Gal @ 500 micron DFT (0.85 litre/m²)

Coverage figures quoted are approximate only and allowance should be made for wastage (3.785 litre = 1 US gallon).

PACKAGING

20 Litre plastic pails.

PRECAUTIONS, STORAGE & HEALTH AND SAFETY

Apply only between 5 - 40°C ambient. If temperatures exceed this range contact your technical sales representative. **Elastoclad HR** should be kept tightly sealed and stored in a cool dry place.

SHELF LIFE

12 months if stored correctly in original unopened packaging.

TECHNICAL SERVICE

The Cormix International Technical Service Department is available to assist you in the correct use of our products and its resources are at your disposal entirely without obligation.

QUALITY ASSURANCE

ISO 9001 : 2008 verified by TUV Nord.



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EN 1504-2

Protection and repair of
concrete structures : Surface
protection systems for
concrete coating (PI, MC,IR)

Permeability to CO ₂ :	sd > 50 m
Permeability to water vapour:	< 0.1kg.m ² .h ^{0.5}
Capillary absorption permeability to water:	sd < 5 m (class I)
Pull-off test:	≥ 0.8 N/mm ²
Dangerous substances:	Comply with 5.3
Reaction to fire:	Class F

CONTACT DETAILS

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