

PRODUCT DATA SHEET

Cool Barrier Roof Optimum*



HIGH PERFORMANCE, WATER BASED
ONE-COMPONENT, LIQUID APPLIED POLYURETHANE
MEMBRANE FOR ROOF WATERPROOFING SYSTEMS



DESCRIPTION

Cool Barrier Roof Optimum is super durable, cold-liquid applied membrane, one-component, seamless, water-based, highly elastic and UV-stable, aliphatic polyurethane, designed to provide easy application and a durable waterproofing solution. Suitable for use in cold, hot and tropical climatic conditions.

USES

Cool Barrier Roof Optimum should be used ideally, by experienced professionals.

- For new construction and refurbishment projects
- For roofs displaying complex detail areas and geometry, even when accessibility is limited
- For cost efficient life cycle extension of failing roofs
- Highly Solar reflective – High SRI value
- Excellent cool roof characteristics and energy production enhancement with photovoltaic panels.

CHARACTERISTICS / ADVANTAGES

- Proven technology
- One component - no mixing, easy and ready to use
- UV resistant - Highly reflective (RAL9016) and resistant to yellowing
- Cold applied - requires no heat or flame
- Seamless roof waterproofing membrane
- Compatible with Polyester Fabric - easy to detail
- Fast curing - free from resin damage almost immediately on application
- High elastic and crack-bridging - retains flexibility even at low temperatures
- Easily re-coated when needed - no stripping required
- Good adhesion to most substrates - see primer chart
- Vapour permeable - allows substrate to breathe
- Strong resistance to common atmospheric chemicals

APPROVALS / STANDARDS

- Liquid applied roof waterproofing kit according to ETAG 005, 06. **ETA 18/0460**
- ¹Reaction to fire according to EN 13501-1:
 - Euroclass E
- ¹Nordic test method CEN TS 1187
 - Class FROOF (t2)

Classification of Waterproofing System (ETAG no. 005) for use by the client:

Useful life: category W2, expected useful life 10 years

Climate zones:

- category M & S, moderate and severe climate
- category TL3, severe low temperature
- category TH4, severe high temperature

Roof Slope: category S1 – S4 Slope (<5 till >30) %

User load: category P3, normal

PRODUCT INFORMATION

Chemical base	One-component, water-based aliphatic polyurethane
Packaging	18 L Plastic bucket
Colour	Slate grey (RAL 7015), traffic white (RAL 9016), other colours available upon request
Shelf life	9 months from date of production
Storage conditions	The product must be stored properly in original, unopened and undamaged sealed packaging in dry conditions at temperatures between 0 °C and +25 °C. Higher storage temperatures may reduce shelf life of product. Reference shall also be made to the storage recommendations within the safety data sheet.
Density	~1.30 kg/l (23 °C) (EN ISO 2811-1)
Solid content	~63.4 % by weight ~52.0 % by volume
Total Elongation, 30d 70°C	~359, 4% (100mm/min, rectangular specimen, 500 µm DFT)

TECHNICAL INFORMATION

Solar Reflectance Index	≥ 100* RAL 9016 ≥ 50* RAL 7015 *All values refer to the initial (properly cured, non-weathered) status
Service Temperature	-20 °C min. / +80 °C max.
Water Vapour Permeability	Diffusion-equivalent air layer thickness sd-m : 5 * *moister flow density g [(m²*d)]:7 , mean layer thickness d-mm: 1,5

SYSTEMS

System Structure	Please refer to Application Instructions
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APPLICATION INFORMATION

Ambient Air Temperature	+5 °C min. / +35 °C max.
Relative Air Humidity	5 % r.h. min. / 85 % r.h. max.
Substrate Temperature	+5 °C min. / +60 °C max. ≥ 3 °C above dew point
Substrate Moisture Content	≤ 5 % pbw moisture content. No rising moisture according to ASTM (Polyethylene-sheet).
Substrate Pre-Treatment	Please refer to Application Instructions
Consumption Rates	Refurbishment projects: 1 -1.5 kg (~0, 7 – 1, 2 lit) per sq.m. Waterproofing projects: 3 kg (~2, 3 lit) per sq.m. (See Section Application Instructions)
Pot Life	Cool Barrier Roof Optimum is designed for fast curing. High temperatures combined with high air humidity will increase the curing process. Thus, material in opened containers should be applied immediately. In opened containers, the material will form a film after 1 – 2 hours approximately (+20 °C / 50 % r.h.).

Waiting Time / Overcoating	Ambient conditions		Minimum waiting time	
	+5 °C / 50 % r.h.		24 h	
	+10 °C / 50 % r.h.		12 h	
	+20 °C / 50 % r.h.		8 h	
	*After four days the surface must be cleaned and primed with Abolin® React-ivation Primer before continuing. Note: Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.			
Applied Product Ready for Use	Ambient conditions	Rain resistance	Touch dry	Full cure
	+5 °C / 50 % r.h.	24 h	8 – 12 h	16 – 24 h
	+10 °C / 50 % r.h.	24 h	6 h	10 – 12 h
	+20 °C / 50 % r.h.	12 h	4 h	8 – 10 h
	*Be aware that impact of heavy rain or rain showers can physically damage the still liquid membrane. Note: Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.			

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

The surface must be sound, of sufficient strength, clean, dry and free of dirt, oil, grease and other contamination. Depending on the material the substrate must be primed or mechanically cleaned. Grinding may be necessary to level the surface. Suitable substrates are such as: concrete, bituminous felts and coatings, metal, brickwork, asbestos cement, ceramic tiles, wooden substrates. All substrates must be cleaned and prepared using high pressure water jet. Abrasive blast cleaning, scarifying equipment or other suitable approved mechanical methods.

Cementitious substrates:

New concrete should be cured for at least 28 days and should have a pull-off strength $\geq 1.5 \text{ N/mm}^2$.

Loose friable material and weak concrete must be completely removed by mechanical means to achieve an open textured surface and all surface defects such as blowholes and voids must be fully exposed.

Repairs to the substrate, filling of joints, blowholes-voids and surface leveling must be carried out using the appropriate products. Refer to Abolin's Technical Department for further advice. High spots must be removed by for example grinding.

Outgassing is a naturally occurring phenomenon of concrete that can produce pinholes in subsequently applied coatings. The concrete must be carefully assessed for moisture content, air entrapment, and surface finish prior to any coating work. Installing the Cool Barrier Roof Optimum either when the concrete temperature is falling or stable can reduce outgassing. Prime the substrate before applying the Cool Barrier Roof Optimum systems.

Primer: Cool Barrier Grip Nano, Cool Barrier Hydrodur V200 . Primer Consumption $[\text{lit/m}^2]: 0.100 - 0.150$

Brick and stone:

Mortar joints must be sound and flush pointed. Use localised reinforcement over connection joints and prime before applying Cool Barrier Roof Optimum.

Primer: Cool Barrier Grip Nano, Cool Barrier Hydrodur V200 . Primer Consumption $[\text{lit/m}^2]: 0.100 - 0.150$

Bituminous felt:

Ensure that Bituminous felt is firmly adhered or mechanically fixed to the substrate.

Bituminous felt should not contain any badly degraded areas and be primed before applying Cool Barrier Roof Optimum.

Primer: Cool Barrier Grip Nano, Cool Barrier Hydrodur V200 . Cool barrier Roof Primer or Cool Barrier Roof Optimum diluted 10% with water.

Primer Consumption $[\text{lit/m}^2]: 0.250 - 0.300$

Metals:

Metals must be in a clean sound rust free condition.

Metals surfaces must be free of oil and greases.

Abrade exposed surfaces to reveal bright metal.

Use localised reinforcement over joints and fixings.

Primer: Cool Barrier Hydrodur V200 or Cool Barrier Roof Optimum diluted 10% with water.

Primer Consumption $[\text{lit/m}^2]: 0.250 - 0.300$

Paints/Coatings:

Ensure the existing material is sound and firmly adhered.

Remove any oxidized layers and use localised reinforcement over joints.

Primer: Cool barrier Roof Primer or Cool Barrier Roof Optimum diluted 10% with water.

Primer Consumption $[\text{lit/m}^2]: 0.250 - 0.300$

Existing Cool Barrier Roof Optimum Systems:

The existing Cool Barrier Roof Optimum Systems should still be soundly adhered to the substrate be clean, dust free and dry.

Primer: Cool barrier Roof Primer or Cool Barrier Roof Optimum diluted 10% with water.

Primer Consumption $[\text{lit/m}^2]: 0.250 - 0.300$

MIXING

Mixing is not required, however if the product is settled or separated on opening, stir Cool Barrier Roof Optimum, gently but thoroughly in order to achieve a uniform colour. Stirring gently will minimise air entrainment.

APPLICATION

Prior the application of Cool Barrier Roof Optimum the priming coat if used (Prime Stage) must have cured tack-free. For the Waiting Time / Overcoating please refer to the Product Data Sheet of the appropriate primer. Damageable areas (handrails etc) have to be protected with tape or plastic wrapping. Please note, always begin with details prior to the installation of the horizontal surface.

Applying the Cool Barrier Roof Optimum in combination with Fabric (embedment stage)

Remember: This is a waterbased product, pigmented, easy and ready to use. Prior to the application of Cool Barrier Roof Optimum the priming coat must have cured tack-free. Protect adjacent areas from splashes, over painting, damage etc. with an adhesive tape or plastic

Mixing

Prior to application, stir Cool Barrier Roof Optimum thoroughly for 1 minute in order to achieve a homogeneous mixture using a slow speed (300 - 500 rpm) drill and basket type paint mixer. Over mixing must be avoided to minimise air entrainment.

Way of Application

Solvent resistant short-piled roller: Use in the application of Cool Barrier Roof Optimum to ensure a consistent thickness of the seamless roof systems.

Thick hair brush: For application of Cool Barrier Roof Optimum to all details and penetrations.

Airless spray equipment: When using Airless spray ensure proper application rates of the product in order to achieve the minimum wet film thickness required for a proper installation of the fabric. The applied material must be wet in depth in order the fabric to be regularly embodied.

Procedure with fabric

At this stage, Cool Barrier Roof Optimum is applied in very high dry film thickness (consumption up to 2kg per sqm).

Large area/embedment: Apply the Cool Barrier Roof Optimum with a roller, at the correct coverage rate (app 1,2 – 1,5 kg per m²), working on 4-5 m² at a time. Work only so far in advance that the material stays liquid. Lay fabric material onto the wet coating and firmly embed, by subsequent pressing/rolling with the roller. Ensure full saturation of the fabric. Overlapping of the fabric a minimum 5 cm and ensure overlaps are sufficiently wet to bond. Apply the rest quantity of the Cool Barrier Roof Optimum (0,800 – 0,500 kg per m², until the fabric material is firmly and fully covered. The surface of the reinforcement should look wet and fully sealed.

Procedure with fabric: Smooth surfaces

Use a short pile roller to embed fabric material into the wet coating applied at the quoted coverage rate. Use a longer nap roller over irregularities or stepped joints, as this gives better contact with surface contours. Unroll over the wet area and embed completely with the roller. Repeat the process in stages.

Procedure with fabric: Irregular surfaces

Follow the same procedure for smooth surfaces but use the longer nap roller. Exert more pressure at the embedment stage. Fabric material may lift initially, but it will wet out in the embedment coating and lay in place.

Detail work/embedment:

When working on protrusions, upstands, parapets or other fixtures and fittings which are not part of the main horizontal or vertical substrate, pre-cut required lengths of the fabric material. Prepare the required pieces of fabric for each particular detail. Apply Cool Barrier Roof Optimum to the area to be reinforced using a brush and/or medium length pile roller. Immediately lay the precut lengths of fabric reinforcement material onto the wet coating and firmly embed.

Apply the Cool Barrier Roof Optimum as the final Top Coat

At this stage, Cool Barrier Roof Optimum is applied as the final-protective coating only when the embedment stage is dry or cured (this is usually overnight).

Way of application

By Roller: Requires two coats, dependent on the system. The two coats may be applied, by splitting the remaining quantity (app. 1 kg) into two roughly equal amounts.

By Brush: Always requires two - three finishing coats with even applications at right angles to each other.

By Airless Spray: Its highly recommended in order to achieve a smooth, uniform –finish of app 0,5 m

Summary

(Prime Stage)

1. Apply Primer as required

Fabric (embedment stage).

2. Apply first coat of Cool Barrier Roof Optimum. Work only so far in advance that the material stays liquid.
3. Roll in the Abolin Recommended Polyester Fabric Overlap the Polyester Fabric a minimum 5 cm and ensure overlaps are sufficiently wet to bond both layers.
4. The roller may require only a little extra material to keep wetted but no further significant material needs to be added at this stage.
5. After the coat is dry enough to walk on, seal the roof area with second coat of Cool Barrier Roof Optimum.

Final (Top Coat Stage)

6. Apply a third coat of Cool Barrier Roof Optimum

CLEANING OF TOOLS

Clean all tools and application equipment with WATER immediately after use. Hardened and/or cured material can only be removed mechanically.

LIMITATIONS

- Do not apply Cool Barrier Roof Optimum on substrates with rising moisture.
- Cool Barrier Roof Optimum is not suitable for permanent water immersion.
- On substrates likely to exhibit outgassing, apply during falling ambient and substrate temperature.
- If applied during rising temperatures “pin holing” may occur from rising air.
- Do not dilute Cool Barrier Roof Optimum with any solvent.
- Do not use Cool Barrier Roof Optimum for indoor applications.
- Do not apply close to the air intake vent of a running air conditioning unit.
- Volatile bituminous materials may stain and or soften below the coating.
- Do not apply cementitious products (example: tile mortar) directly onto Cool Barrier Roof Optimum.
- For professional use only.

BASIS OF PRODUCT DATA

All technical data stated in this Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Please consult the local Product Data Sheet for the exact product data and uses.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Abolin products, are given in good faith based on Abolin's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Abolin's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered.

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This Technical Data Sheet supersedes those previously issued.

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*Cool Barrier Roof Optimum product is part of the ETAG 005 part 6 certified waterproofing Kit, which consist on the following products: Cool Barrier Grip Nano, Reinforcement fabric and Cool Barrier Roof Optimum.

¹. For further details about fire performance of LIQUID APPLIED ROOF WATERPROOFING KITS see also EAD 030350-00-0402, § 2.2.1 External fire performance.

The management system has been certified according to EN ISO 9001. Abolin Co Greece 18 Galaxia Str. Afaia Skaramaga Haidari 12462 Tel: 0030 210 5575568 Fax: 0030 210 5570616 Email: abolin@abolinco.com, Web: www.abolinco.com