

System Overview:

AlphaGuard BIO is a unique polyurethane, two-component, liquid applied membrane with a high bio-based content (castor oil) that can be used to weatherproof any new build or refurbishment flat roof. With its extremely low odour, ease of application and rapid curing properties, AlphaGuard BIO systems are the ideal specification for highly sensitive areas, such as hospitals and schools where pungent odours should be avoided.

Legal requirements

CDM Regulations:

The Construction (Design and Management) Regulations 2015 came into force on 6th April 2015 and governs the appropriate health and safety measures of duty holders to ensure the safe operation of construction sites.

The client and/or contract administrator must appoint competent personnel to oversee adherence to all necessary regulations under CDM and that relevant duty holders have the appropriate information. Tremco CPG UK Ltd are not considered the Principal Designer and works should only commence once all relevant authorities concur that the requirements of CDM have been fulfilled.

Further information can be obtained from the [HSE](#).

Diisocyanates Training:

REACH Regulations now state that products containing more than 0.1% of diisocyanates, including polyurethane products such as adhesives, sealants, or coatings, require mandatory Level 1 training for staff who directly handle these substances for professional use. We recommend you discuss any training requirements with your employer before application of product.

Further details and online training at [Safe Use Diisocyanates](#)

Personal Protective Equipment

For basic application of the AlphaGuard BIO liquid applied products within an exposed environment that provides limitless ventilation, the following basic levels of personal protective equipment (PPE) must always be worn. Safety glasses with suitable side-shields.

- Safety glasses with suitable side-shields.
- Chemical-resistant gloves. Glove thickness > 0.7 mm. Wear gloves tested to EN 374. Gloves should be replaced if there is any sign of material damage.
- Antistatic protective clothing. Remove and wash contaminated clothing before re-use.
- Application within confined spaces will require adherence to appropriate workplace exposure limits or potentially
- include suitable respirators. Please refer to Tremco product specific safety data sheets for further guidance.

Tooling and Cleaning

To achieve efficient application and suitable finish, the following tooling should be considered.

- Medium pile sheepskin rollers, typical 12inch or 9inch width with a telescopic pole for field area application. Use smaller 4inch rollers for tight detailing or areas of limited access.
- Heavy duty scissors.
- Twin-paddle mixer or suitable mechanical stirrer e.g cordless drill.
- Digital scales.
- Mixing buckets (decanting).
- Fire extinguishers. Dry powder, Carbon dioxide (CO₂), Alcohol-resistant foam.
- Infrared thermometer.
- Thermo-hygrometer.
- Wet film comb.
- Spiked roller.

Compatibility consideration

- AlphaGuard BIO waterproofing is versatile and generally compatible with common building materials. However, care should be taken when exposing any AlphaGuard products to solvent based liquids such as acetone or white spirit. Surface spills should be cleaned immediately with soap and water.
- Aggressive acid cleaners, naked flames, hot swarf, surface temperature exceeding 100 °c, or abrasive tooling should not be placed in contact with AlphaGuard BIO waterproofing products.
- Should a material type present a compatibility concern, seek advice from the Tremco Technical Services before application.

Application standards

Tremco CPG UK Ltd are member of the [Liquid Roofing & Waterproofing Association](#) (LRWA), consequently we recommend their best practise are followed from an application, health and safety, and design perspective.

The design, construction, and installation aspects of BS 6229:2018 'Flat roofs with continuously supported flexible waterproof coverings' should be considered during application. The Tremco project specific specification can assist with many design considerations during construction and provide clarity regarding suitable detail installation.

Training recommendations

For competent installation of any liquid applied membrane system, Tremco CPG UK Ltd recommends that relative qualifications are obtained by at least one experienced operative on site. These qualifications can relate to a skilled labour CSCS card (blue) NVQ level 2, LRWA Specialist Applied-Skills Program (SAP) or Tremco in-house training.

Product information

The below is a list of the basic waterproofing range of AlphaGuard BIO system components.

Product name	Product code	Coverage	Unit size	Product use
AlphaGuard BIO WB Primer	RW411606688	0.21kg/m ² (smooth) to 0.6kg/m ² (granular)	15kg drum	Adhesion promoter to asphalt or bitumen substrates
AlphaGuard BIO C-Prime	RW412K606750	0.4kg/m ²	6kg kit	Adhesion promoter to concrete
AlphaGuard BIO M-Prime	RW413K606751	0.12kg/m ²	6.05kg kit	Adhesion promoter for metal substrates
AlphaGuard BIO PVC Primer	RW415606742	0.172kg/m ²	4.3kg drum	Adhesion promoter for PVC single ply membrane substrates.
AlphaGuard BIO Reactivation Primer	RW414606693	N/A	4.35kg drum	Adhesion promoter for night laps and delayed works
AlphaGuard Biowash	RW416606743	0.100kg/m ²	5kg drum	Fungicidal and biocidal cleaning treatment for soiled substrates
AlphaGuard BIO Base Coat	RW431K606752	1.6kg/m ² (0.8 per layer)	20.18kg kit	Base coat waterproofing
AlphaGuard BIO Top Coat	RW451K606753	0.8kg/m ² (20 year) or 1.2kg/m ² (25 year)	21.3kg kit	Top coat waterproofing
AlphaGuard BIO 225g Reinforcement	RW490606698	146.68m ²	0.965 x 152m	Waterproofing reinforcement

Sequence of works

General working conditions:

Atmospheric conditions should be free of precipitation, severe wind, or frost.

Application Parameters:

The below parameters set out a basic guide to the varying temperatures that can impact curing, adhesion, and product stability. Apply product outside of these limits can result in uncontrolled drying times and potential product failure. We recommend measurements are taken with an infrared thermometer when temperature parameters are at risk.

Ambient Temperature	5°C to 30°C
Substrate Temperature	5°C to 35°C
Material Temperature	10°C to 30°C

Dewpoint parameters:

Dewpoint monitoring is essential for a controlled application and effective curing. The substrate temperature must be 3°C above dewpoint temperature to avoid condensation or moisture related issues during application. We recommend constant monitoring is undertaken with thermo-hygrometer that is referenced to the below table.

rH / Substrate Temperature	-5 °c	0 °c	5 °c	10 °c	15 °c	20 °c	25 °c	30 °c
90 rH	-6.4	-1.4	3.5	8.4	13.4	18.3	23.2	28.2
85 rH	-7.1	-2.2	2.7	7.6	12.5	17.4	22.3	27.2
80 rH	-7.9	-3.0	1.8	6.7	11.6	16.4	21.3	26.2
75 rH	-8.7	-3.9	0.9	5.8	10.6	15.4	20.3	25.1
70 rH	-9.6	-4.8	0.0	4.8	9.6	14.4	19.1	23.9
65 rH	-10.5	-5.8	-1.0	3.7	8.5	13.2	18.0	22.7
60 rH	-11.5	-6.8	-2.1	2.6	7.3	12.0	16.7	21.4
55 rH	-12.6	-8.0	-3.3	1.4	6.0	10.7	15.3	20.0
50 rH	-13.8	-9.2	-4.6	0.1	4.7	9.3	13.8	18.4

Substrate requirements:

All substrates must be clean, dry, free of oil, laitance, loose debris, or foreign materials such as moss, algae and any other substance that could be detrimental to adhesion. Some surfaces may require jet washing, scarifying, sandblasting, or grinding to achieve a suitable substrate.

New Concrete or Screed to Falls:

New in-situ concrete deck should conform to BS EN 206:2013 and BS EN 13670:2009. Lay the new concrete deck in accordance with the manufacturer's instructions or structural engineer's design.

New screed surface finishes to provide a minimum 1:40 design fall as per BS 6229: 2018 'Flat roofs with continuously supported flexible waterproof coverings – Code of practice' and apply in accordance with 'BS 8204-2:2003+A2:2011 Screeds, bases and in situ floorings – Concrete wearing surfaces Code of practice'.

The final surface must provide a smooth floated finish, be free from ridges, hollows, back falls, or prominent float marks that can adversely affect the new waterproofing system.

Typical density of in-situ concrete should be 2160 - 2500 kg/m³ and retain a 3 - 5% moisture by volume when cured.

Note: Concrete with high moisture content requires a minimum curing period of 28 days to achieve adequate strength and moisture levels.

Substrate preparation:

All substrates must be relatively smooth and consistent. Where necessary, carry out remedial repairs to minor surface cracks, splits, or holes that may provide an improper finish.

Adhesion test:

Before direct application of liquid applied membrane to existing field or detail substrates, preliminary adhesion tests must be undertaken to confirm satisfactory adhesion or identify any additional preparation requirements.

Note: Should adhesion failure occur, please contact Tremco Technical Services for further advice and support.

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Note: Should adhesion failure occur, please contact Tremco Technical Services for further advice and support.

Product Mixing & Decanting:

Before application, prepare AlphaGuard BIO liquid products by mechanical agitation using a twin paddle stirrer for a minimum of 2 minutes. Additionally for two component products, gradually combine A and B components continually stirring for a further 2 minutes to evenly disperse.

Standard cure time is typically 4-6 hours subject to ambient temperature, material thickness and mixing content. Product decanting should be undertaken using a set of scales to carefully measure component weight as per the below tables.

Primers			
Product name	Full unit size	Decanted weight @ 50% unit size	Decanted weight @ 25% unit size
AlphaGuard WB Primer	Single component product 15kg	7.5kg	3.75kg
AlphaGuard C-Prime	Part A = 4.7kg / Part B = 1.3kg	Part A = 2.35kg / Part B = 0.65kg	Part A = 1.175kg / Part B = 0.325kg
AlphaGuard M-Prime	Part A = 5.5kg / Part B = 0.55kg	Part A = 2.75kg / Part B = 0.275kg	Part A = 1.375kg / Part B = 0.138kg
AlphaGuard PVC Primer	Single component product 4.3kg	2.15kg	1.075kg
AlphaGuard BIO Reactivation Primer	Single component product 4.35kg	N/A	N/A

Waterproofing			
Product name	Full unit size	Decanted weight @ 50% unit size	Decanted weight @ 25% unit size
AlphaGuard BIO Base Coat	Part A = 17.52kg / Part B = 2.66kg	Part A = 8.76kg / Part B = 1.33kg	Part A = 4.38kg / Part B = 0.665kg
AlphaGuard BIO Top Coat	Part A = 17.91kg / Part B = 3.39kg	Part A = 8.955kg / Part B = 1.695kg	Part A = 4.478kg / Part B = 0.848kg

Carrier Membrane and/or Primer Application:

When applying AlphaGuard BIO directly to timber or thermal insulation, the substrate must be prepared with TremStik Spray Primer before overlaying with TremVap carrier membrane. Apply TremStik Spray Primer in one or two passes using the TremStik applicator spray gun. Spray applied application should be undertaken 10-20 cm away from the designated substrate, coating should be light, and achieve a coverage rate of 12m²/L. TremStik Spray Primer will be touch dry within 2-3 mins and ready to overlay.

For all other direct coating requirements, apply the specific AlphaGuard BIO primer prior to application of AlphaGuard BIO. Once suitably mixed, primers are applied by sheep skin roller in a single coat at application rates specified above.

Detail Waterproofing Application:

Complete all waterproofing detail work prior to the main field area.

Apply AlphaGuard BIO Base and Top Coat to all details in two separate coats, wet-on-dry, with AlphaGuard BIO 225 g Reinforcement installed between base and top coat.

Once A and B components are suitably mixed, apply the first coat of AlphaGuard BIO Base Coat to all details by sheep skin roller at a rate 0.8 kg/m² and continue onto the main field area by a minimum of 100 mm. Whilst the initial coat is still wet, carefully roll out AlphaGuard BIO 225 g Reinforcement, lap by 50mm in any direction, and avoid folds or creases that may affect the final finish. With a wet roller, embed the reinforcement into the coating ensuring good saturation. Immediately apply a second coat of AlphaGuard BIO Base Coat at a rate 0.8 kg/m² and allow to dry.

'20 Year System'

Once AlphaGuard BIO Base Coat has fully cured, suitably mix the A and B components of AlphaGuard BIO Top Coat and apply to a clean surface by sheep skin roller at a rate 0.8 kg/m².

'25 Year System'

Once AlphaGuard BIO Base Coat has fully cured, suitably mix the A and B components of AlphaGuard BIO Top Coat and apply to a clean surface by sheep skin roller at a rate 1.2 kg/m².

In all instances, ensure a minimum 150 mm upstand is maintained from the finished roof level when the membrane is terminated vertically.

Field Area Waterproofing Application:

Lap AlphaGuard BIO Base and Top Coat onto the previously installed detail membranes in two separate coats, wet-on-dry, with AlphaGuard BIO 225 g Reinforcement installed between base and top coat.

Ensure the detail membrane laps are suitably clean before application. Once A and B components are suitably mixed, apply the first coat of AlphaGuard BIO Base Coat to all field area substrate and detail laps by sheep skin roller at a rate 0.8 kg/m². Whilst the initial coat is still wet, carefully roll out AlphaGuard BIO 225 g Reinforcement, lap by 50mm in any direction, and avoid folds or creases that may affect the final finish. With a wet roller, embed the reinforcement into the coating ensuring good saturation. Immediately apply a second coat of AlphaGuard BIO Base Coat at a rate 0.8 kg/m² and allow to dry.

'20 Year System'

Once AlphaGuard BIO Base Coat has fully cured, suitably mix the A and B components of AlphaGuard BIO Top Coat and apply to a clean surface by sheep skin roller at a rate 0.8 kg/m².

'25 Year System'

Once AlphaGuard BIO Base Coat has fully cured, suitably mix the A and B components of AlphaGuard BIO Top Coat and apply to a clean surface by sheep skin roller at a rate 1.2 kg/m².

If a pedestal system is required to support external finishes, blind the AlphaGuard BIO Top Coat Coloured Top Coat with kiln dried sand to provide a suitable key and prevent pedestal slippage.

Important Note: The waterproofing must achieve a minimum dry film thickness of 2mm. Periodic thickness test should be carried out with a wet film comb.

Surface – Make Good:

Once the waterproofing membrane has fully cured, inspect surface for irregularities such as wicks, pin holes or prominent fibres. Make good by sanding, grinding, and/or recoating.

Waterproofing Cure - Inspect:

Whilst each waterproofing layer is still curing, assess the material for obvious signs of trapped air or minor bubbling. Where necessary, use a spiked roller to alleviate any residual air that may create an inconsistent surface finish.

Temporary Seals – Day/Night Joints:

At the end of each working period, partially completed works must be temporarily sealed with night joints to avoid damaging water ingress. Contractor to make all necessary provisions to isolate the membrane system and protect the roof structure.

Delayed Works – Preparation:

Delayed works that exceed 48 hours must utilise AlphaGuard BIO Reactivation Primer to prepare all subsequent laps before further application begins.

Warranty requirements

Upstand and Skirtings Details:

All upstand and skirting details should terminate a minimum of 150 mm above the finished roof level to comply with BS 6229:2018 and our warranty requirements. Any detail failing to achieve this height must be discussed with Tremco Technical Services prior to installation.

Standard Detail Drawings:

To ensure warranty compliance and to achieve the most robust details possible, Tremco standard or bespoke detail drawings are available upon request from the technical services team.

Continuity Testing:

During membrane application to ensure continuity of the waterproofing thickness, periodic measurements should be taken using a wet film comb to verify that a minimum 2000-micron (2mm) film thickness has been achieved throughout the roof area.

Thermographic Survey and Moisture Mapping (Refurbishment Overlays Only):

To verify suitable design, we must undertake a moisture survey to establish if the existing build-up contains any residual moisture that could be detrimental to the new overlay system. Whilst localised core sampling may indicate an overlay is suitable, we must analyse the entire roof area to ensure that any trapped moisture will not adversely affect roof integrity.

Important Note: Before refurbishment works take place, a member of Tremco Technical Services must attend site to undertake a thermographic survey or organise alternative methods during inclement weather.

Integrity Testing (Buried Systems Only):

Should external finishes be applied that restrict future access, such as decking, paving, green roofing etc, a full roof integrity test must be undertaken by a WITA (Waterproof Integrity Test Association) approved contractor prior to finishes being laid. This testing is an additional expense to the client and a copy of this report must be submitted to Tremco Technical Services.

Final Inspection:

The Tremco CPG UK Ltd warranty is subject to a final inspection before any certification will be issued. Once all system components have been installed to an approved standard, Tremco Technical Services will attend site to undertake a final inspection and sign off works. The client or contractor must ensure that suitable and safe access is available upon final inspection.

AlphaGuard BIO

INSTALLATION GUIDE



Maintenance Plan:

To ensure the long-term performance of our systems, a structured maintenance plan should be organised to demonstrate good husbandry of the roof. At the minimum, we recommend an annual inspection is undertaken to review all details, perishable items such as mastic, clear drainage points, remove roof debris or identify any issue that may present immediate risk to waterproofing integrity.

Important Note: Only the original Tremco CPG UK Ltd approved contractor should undertake invasive maintenance work to ensure our system warranty remains intact. If in doubt, please contact Tremco Technical Services for assistance.