

System Overview:

AlphaGuard PUMA is a high-performance, two-component, polyurethane modified methacrylate liquid applied membrane that is primarily specified to waterproof flat roof systems. With an extremely fast catalyst activation, AlphaGuard PUMA cures in minutes ensuring fast application times and minimal disruption to follow-on trades. AlphaGuard PUMA can be applied in low temperatures, has good elongation properties, and offers a robust long lasting surface finish.

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 PUMA liquid applied products within an exposed environment that provides limit-less 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 (catalyst measurement).
- Mixing buckets (decanting).
- Depth gauge (measuring minimum dry film thickness of 2.3mm).
- Suitable self-adhesive tape (taping off).
- Fire extinguishers. Dry powder, Carbon dioxide (CO₂), Alcohol-resistant foam.
- AlphaGuard PUMA Cleaner (tool cleaning of semi-cured product).
- Infrared thermometer.
- Thermo-hygrometer.
- Wet film comb.
- Spiked roller

Compatibility consideration

- AlphaGuard PUMA 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 PUMA 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 PUMA system components.

Product name	Product code	Coverage	Unit size	Product use
AlphaGuard PUMA Concrete Primer	RW512606731	0.3-0.5kg/m2	20 kg drum	Adhesion promoter to metal, concrete or ceramic substrates
AlphaGuard PUMA Asphalt Primer	RW511606708	0.3-0.5kg/m2	20 kg drum	Adhesion promoter to bitumen or asphalt substrates
AlphaGuard PUMA Primer H	RW515606709	0.3-0.5kg/m2	20 kg drum	Adhesion promoter for green concrete
AlphaGuard PUMA Cleaner	RW593606710	n/a	10 kg drum	General purpose cleaner e.g semi cured product on tooling or spillages
AlphaGuard PUMA WP (13kg)	RW531606711	2.8kg/m2 (1.4 per layer)	13kg drum	Primary waterproofing
AlphaGuard PUMA WP (25kg)	RW531606712	2.8kg/m2 (1.4 per layer)	25kg drum	Primary waterproofing
AlphaGuard PUMA WP Quick Flash (13kg)	RW535606713	2.8kg/m2 (1.4 per layer)	13kg drum	Detail waterproofing
AlphaGuard PUMA WP Quick Flash (25kg)	RW535606714	2.8kg/m2 (1.4 per layer)	25kg drum	Detail waterproofing
AlphaGuard PUMA 165g Reinforcement Fabric	RW592606715	100m2	1m x 100m	Waterproofing reinforcement
AlphaGuard PUMA Coloured Top Coat (Grey)	RW551606716	0.3-0.5kg/m2	20kg drum	Top coat to waterproofing
AlphaGuard PUMA Coloured Top Coat (Red)	RW551606717	0.3-0.5kg/m2	20kg drum	Top coat to waterproofing
Catalyst 2kg	FL050611694	Refer to mixing table	2kg box	Catalyst activator
Catalyst 25kg	FL050322008	Refer to mixing table	25kg box	Catalyst activator
AlphaGuard PUMA GP Thix	RW536606719	As required	25kg drum	Protection coating for bolt heads or sharp protrusions

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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	0°C to 30°C
Substrate Temperature	3°C to 35°C
Material Temperature	5°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.

Product Mixing & Decanting:

Before application, prepare AlphaGuard PUMA liquid products by mechanical agitation using a twin paddle stirrer for a minimum of 2 minutes. Gradually add catalyst and continually stir for an additional 2 minutes to evenly disperse.

Catalyst mixing can be adjusted to control cure times during extreme temperature fluctuations, but care should be taken to not over catalyse product as stability and performance issues can occur. Standard cure time is typically 30-60mins subject to ambient temperature, material thickness and catalyst content. Catalyst mixing should be undertaken using a set of scales to carefully measure catalyst weight as per the below tables.

Primers			
Temperature	Weight % grams per 20kg (full unit size)	Decanted weight @ 50% unit size (grams per 10kg)	Decanted weight @ 25% unit size (grams per 5kg)
30°C	1% (0.2kg)	1% (0.1kg)	1% (0.05kg)
20°C	2% (0.4kg)	2% (0.2kg)	2% (0.1kg)
10°C	4% (0.8g)	4% (0.4kg)	4% (0.2kg)
0°C	6% (1.2kg)	6% (0.6kg)	6% (0.3kg)

Waterproofing (25kg)			
Temperature	Weight % grams per 25kg (full unit size)	Decanted weight @ 50% unit size (grams per 12.5kg)	Decanted weight @ 25% unit size (grams per 6.25kg)
30°C	1% (0.25kg)	1% (0.125kg)	1% (0.063kg)
20°C	2% (0.5kg)	2% (0.25kg)	2% (0.125kg)
10°C	3% (0.8kg)	3% (0.4kg)	3% (0.2kg)
0°C	5% (1.25kg)	5% (0.63kg)	5% (0.313kg)

Waterproofing (13kg)			
Temperature	Weight % grams per 13kg (full unit size)	Decanted weight @ 50% unit size (grams per 6.5kg)	Decanted weight @ 25% unit size (grams per 3.25kg)
30°C	1% (0.13kg)	1% (0.065kg)	1% (0.033kg)
20°C	2% (0.26kg)	2% (0.13g)	2% (0.065kg)
10°C	3% (0.39kg)	3% (0.20kg)	3% (0.098kg)
0°C	5% (0.65kg)	5% (0.325kg)	5% (0.163kg)

Top Coats			
Temperature	Weight % grams per 20kg (full unit size)	Decanted weight @ 50% unit size (grams per 10kg)	Decanted weight @ 25% unit size (grams per 5kg)
30°C	1% 0.2kg)	1% (0.1kg)	1% (0.05kg)
20°C	2% (0.4kg)	2% (0.2kg)	2% (0.1kg)
10°C	4% (0.8g)	4% (0.4kg)	4% (0.2kg)
0°C	6% (1.2kg)	6% (0.6kg)	6% (0.3kg)

Carrier Membrane and/or Primer Application:

When applying AlphaGuard PUMA WP 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 PUMA primer prior to application of AlphaGuard PUMA WP. Once the specific AlphaGuard PUMA primer is suitably mixed with catalyst, apply by sheep skin roller at a rate 0.3-0.5 kg/m² in a single coat.

Detail Waterproofing Application:

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

Apply AlphaGuard PUMA WP Quick Flash to all details in two separate coats, wet-on-wet, with AlphaGuard PUMA 165 g Reinforcement Fabric installed between each coat.

Once suitably mixed with catalyst, apply the first coat of AlphaGuard PUMA WP Quick Flash to all details by sheep skin roller at a rate 1.4 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 PUMA 165 g Reinforcement Fabric, lap by 50 mm in any direction, and avoid folds or creases that may affect the final finish. With a wet roller, embed the fabric into the coating ensuring good saturation. Immediately apply a second coat of AlphaGuard PUMA WP Quick Flash at a rate 1.4 kg/m² achieving an overall coverage of 2.8 kg/m² (minimum 2.3 mm dry film thickness).

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 PUMA WP onto the previously installed detail membranes in two separate coats, wet-on-wet, with AlphaGuard PUMA 165 g Reinforcement Fabric installed between each coat.

Ensure the detail membrane laps are suitably clean before application. Once suitably mixed with catalyst, apply the first coat of AlphaGuard PUMA WP to all field area substrate and detail laps by sheep skin roller at a rate 1.4 kg/m². Whilst the initial coat is still wet, carefully roll out AlphaGuard PUMA 165 g Reinforcement Fabric, lap by 50mm in any direction, and avoid folds or creases that may affect the final finish. With a wet roller, embed the fabric into the coating ensuring good saturation. Immediately apply a second coat of AlphaGuard PUMA WP at a rate 1.4 kg/m² achieving an overall coverage of 2.8 kg/m² (minimum 2.3 mm dry film thickness).

Top Coat Application:

Apply AlphaGuard PUMA Coloured Top Coat onto the fully cured waterproofing membrane in a single coat. Finished colour: RAL 7043 'Traffic Grey'.

Ensure the waterproofing surface is clean and dry before application. Once suitably mixed with catalyst, apply AlphaGuard PUMA Coloured Top Coat by sheep skin roller at a rate 0.3-0.5 kg/m² in a single coat to all areas that have received waterproofing.

If a pedestal system is required to support external finishes, blind the AlphaGuard PUMA 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 2.3mm. 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 PUMA Cleaner 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 2300-micron (2.3 mm) 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.

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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.