



TECNOCOAT H-2049 - POLYUREA MEMBRANE FOR WATERPROOFING AND COATING

Two- component, hot-spray polyurea membrane for waterproofing, protection and sealing. It is made up of two highly reactive liquid components, isocyanates and resins, mixed together using our specific spray equipment TC2049 or similar, to form a solid pure and aromatic pure polyurea membrane, completely adhered to the substrate, without joints or overlaps, elongable, watertight and waterproof, **with high mechanical properties and shore hardness.**



USES

For application in the following situations:

- ROOFING: Sloped/flat walkable roofs, IRMA, balconies, and overhangs (ETA 20/0263)
- Green roofs (P4:TH4, ETA 20/0263)
- Retaining walls and foundations, Concrete decks (EN 1504-2)
- Swimming pools and water parks
- Vehicle and boat coatings (bed liners)
- Furniture and thematizations
- Flat or sloped asbestos roofs (on TECNOFOAM, spray polyurethane foam system)
- As a protection for SPF (TECNOFOAM, spray polyurethane foam system)

NOTE: call our technical department about the application to other substrates or scopes of use

Minimum thickness	±1,5 mm (working life:W3, 25 years)
Tack-free time	±5 secs
Tensile strength	>19 MPa
Elongation at break	>390 %
Shore Hardness A/D	>90 / >45
Application method	Spray equipment



COLORS



Gray



GENERAL SPECIFICATIONS

- Two-component, 100% solids content, aromatic polyurea that once applied, forms a hard-wearing, continuous, seamless, waterproofing, and solid membrane that offers a certified waterproofing, watertight behavior.
- It holds an ETA 20/0263, issued by EOTA (European Organization for Technical Assessment). under the EAD 030350-00-0402 guide, specific approval for "**Liquid Applied Roof Waterproofing Kit, based on pure polyurea**" working life 25 years (W3), at 1.4 mm thickness, ponding water admitted
- Green roof application certified, **root resistance**, according to the EN 13948 (ETA 20/0263)
- It has **CE marking** on the basis of a statement made DoP Declaration of Performance (DoP) conforms to the regulations UE 305/2011
- The application and training are done by our spray equipment TC2049 (spray-equipment.tecnopolgroup.com) or similar
- Thanks to its versatility and its tack-free time of around 3-5 seconds, allows the adherence to any surface, making it the ideal product for application on uneven surfaces and in areas of any shape, whether curved or squared.
- Due to its resistance, it can be walked on and it will accept a rough finish to make it non-slip. (using Silica Sand or Tecnoelastic range aggregates)
- A ceramic floor can be placed on top. In this case, we recommend applying a thin coat of Primer PU-1000 or Primer PU-1050, consumption of around 50 to 60 g/sqm, and spreading Silica Sand on top, consumption of around 700-1000 g /sqm, to improve mechanical anchorage.
- Joints and any type of union are saved since the finish is uniform and in one piece, providing a surface with optimal maintenance and cleaning.
- His properties allow it to adhere to any surface such as concrete, ceramic tiles, metals, spray polyurethane foam (Tecnofoam), plywood(OSB), asphalt/bituminous sheets. In any case or material, the surface must be consistent, firm, clean, and dry when the products are applied. Recommended applying directly on the concrete deck.
- Free from harmful VOC compounds, therefore, it does not hurt the ozone layer (VOC's zero). It's 100% recyclable by mechanical means friendly to the environment; no gas collection for recycling and/or destruction is required; it doesn't emit substance to the environment once installed.
- It should be applied in dry conditions avoiding the presence of humidity or coming from the surface to be coated or the substrate, whether at the time of application or subsequently (pressure from phreatic water level). In the event there is humidity in the substrate at the time of application.
- It is an aromatic membrane and, even though it is stable against solar radiation it requires solar radiation protection (UV rays) to do not lose its physical and mechanical properties. Therefore, our approved system (under ETA 20/0263), incorporates a protective polyurethane colored aliphatic resin, Tecnotop 2C, for use in the absence of other physical protection elements. You can apply Tecnotop S-3000, Tecnotop 2CP or Tecnotop 1C also.

YIELD

The recommended minimum thickness is 1,5 mm. (60 mils DFT), total yield is 1,7 kg/sqm, applied in various coats. The total thickness may vary according to support or climatological conditions.

PACKAGING

Metallic drum kit, in two different formats:

- LARGE KIT: 225 kg each component (B side: resin and A side: isocyanates).
- SMALL KIT: 60 kg each component (B side: resin and A side: isocyanates).

SHELF LIFE

12 months at temperatures between 5° C and 35° C (41 °F to 95 °F), provided it is stored in a dry place. Once the tin



has been opened, the product must be used. B side must be agitated mechanically before inserting the transfer pumps and use.

Concrete substrate

- Concrete should be completely cured (concrete curing takes 28 days) or, in any case, the maximum level of humidity allowed for the substrate should be verified, depending on the primer used.
- Concrete must have a surface with a correct planimetry, high surface resistance, eliminating laitance or release agents, without excessive irregularities. Therefore, the previous action of sanding, polishing, milling or shot-blasting will be assessed by the applicator to achieve a preparation of the support according to ICRI Guide 03732, CSP values 3 to 5.
- Cracks and damaged areas must be repaired using epoxy mortar Primer EP-1020/Primer EP-1010.
- Mastic PU must be used on fissures or small cracks on the surface.
- In joints (width < 15 mm): remove old material, clean and fill with Mastic PU.
- In joints (width >15 mm): remove old material, clean and fill with Mastic PU. Complement with a Tecnoband 100 band on the upper part.
- In structural/expansion joints: remove old material, clean and fill with Mastic PU. Complement with specific elastic bands and Tecnoband 100
- Clean up well and eliminate all contaminants from the elements, such as dust or chippings, using dry methods preferably.
- Primer application using our Primer PU-1050/Primer PUC-1050, total yield of 250 g/sqm (applied in several thin coats) or Primer WET depending on the existing moisture in the substrate and with a total yield of 450 g/sqm
- Apply/spray the membrane evenly and in several layers until the dry film thickness required by the project is achieved.
- Application of the aliphatic polyurethane resin for protection against UV rays Tecnotop 2C/2CP/1C

Ceramic tiles substrate

- Ceramic surfaces should not have empty joints or loose elements or parts. These should be filled with Mastic PU mastic or mortar, according to their size.
- Existing joints or seals: remove the old material, clean up and fill with Mastic PU and reinforced using Tecnomesh 100
- Sanding with specific equipment. Thereby, to remove moss or solids particles bonded to the support, and opening the pore.
- Clean up, using a vacuum method.
- Primer application using Primer EP-1040, total yield 100-150 g/sqm, or Primer EPw-1070, total yield 150-200 g/sqm
- Apply/spray the membrane evenly and in several layers until the dry film thickness required by the project is achieved.
- Application of the aliphatic polyurethane resin for protection against UV rays Tecnotop 2C/2CP/1C.

NOTE: For other types of supports, weather conditions or the substrate to be applied, consult our technical department.

REPAIR AND OVERLAPS PROCESSES

REPAIR

In cases where the membrane repair by accidental causes, or assembly procedures not covered installations, shall be as follows:

- Cut, removal of the affected area and/or damaged surface
- Sanding this area extending about 20–30 cm. around the perimeter, for overlapping security
- Cleaning (vacuuming) of waste generated (powder, dust...); if it's possible don't use water, and if used, support humidity value; ketones applicability based solvents for reducing this type of surface cleaning
- Apply a thin layer (100-150 g/sqm) of polyurethane resin Primer PU-1050/Primer EPw-1070.



- Light spread Silica Sand over the wet primer applied before
- Wait for the total drying
- Apply/spray the membrane evenly and in several layers until the dry film thickness required by the project is achieved.
- Application of the aliphatic polyurethane resin for protection against UV rays Tecnotop 2C/2CP/1C

OVERLAPS

In cases has been exceeded recoat time (24~48 hours), so the waiting time between jobs is prolonged, proceed as follows:

- Sanding strip longitudinal overlap of about 20~30 cm. wide
- Cleaning (vacuuming) of waste generated (powder, dust...)or existing dust; if it's possible, do not use water, and if it's used, check the support humidity value; ketones applicability based solvents for conducting this type of surface cleaning
- Apply a thin layer (100-150 g/sqm) of polyurethane resin Primer PU-1050/Primer EPw-1070.
- Light spread Silica Sand over the wet primer applied before
- Wait for the total drying
- Apply/spray the membrane evenly and in several layers until the dry film thickness required by the project is achieved.
- Application of the aliphatic polyurethane resin for protection against UV rays Tecnotop 2C/2CP/1C

APPLICATION REQUIREMENTS (SPRAY EQUIPMENT)

For the formation, it is necessary to mix the two initial liquid components, isocyanates and resin by our spray equipment TC2049 (spray-equipment.tecnopolgroup.com) or similar (proper maintenance and cleaning it is recommended). The general parameters for this material will be the following:

- Isocyanate heater temperature: 70-75 °C (158°F to 167°F)
- Resine heater temperature:70-75°C (158°F to 167°F)
- Hose temperature:±70 °C (158°F)
- Working pressure: 2.500 - 3.000 psi (170 to 205 bar)
- Recommended mixing chamber: GU-07008-1 or GU-07008-2 (use *mechanical purge chamber*)

These temperatures and pressure parameters must be valued, ratified or slightly varied by the applicator, depending on the conditions of each climatic zone, weather situation or according to the specifications of the projection equipment. It is the responsibility of the owner / applicator of the equipment to keep it in perfect condition in order to maintain the correct mixing ratio of the two components that Tecnopool delivers separately, by periodically updating its maintenance controls. During the execution of the application, it may be necessary to correct these parameters according to changing external conditions, as well as to verify the correct operation of the machine (pressure and temperature).

HEALTH AND SAFETY

These safety recommendations for handling, are necessary for the implementation process as well as in the pre and post, on exposure to the loading machinery.

- Respiratory Protection: When handling or spraying use an air-purifying respirator.
- Skin protection: Use rubber gloves, remove immediately after contamination. Wear clean body-covering. Wash thoroughly with soap and water after work and before eating, drinking, or smoking.
- Eye / Face: Wear safety goggles to prevent splashing and exposure to particles in the air.
- Waste: Waste generation should be avoided or minimized.
- Incinerate under controlled conditions in accordance with local laws and national regulations.
- Re-occupancy of the work site without respiratory equipment is minimum 24 hours providing the correct ventilation for the area sprayed.
- Contractors and applicators must comply with all applicable and appropriate guidelines for storage and safety



guidelines.

Anyway, consult the material and safety data sheet of the products of the system.

COMPLEMENTARY PRODUCTS

The following products can be applied as complements to their use. In this way, its physical-mechanical characteristics are protected and improved depending on its exposure, desired finish, or type of substrate:

- PRIMER EP-1010: epoxy resin with charges for filling existing holes in concrete or ceramic surfaces, to be applied in a single coat
- PRIMER EP-1020: epoxy resin to apply on concrete or ceramic substrates, improving adherence, absorbing substrate moisture, and regularizing the planimetry of the substrate.
- PRIMER PU-1050/PUc-1050: solvent-free polyurethane resin to apply on concrete, improving adherence, absorbing substrate moisture, and regularizing the planimetry of the substrate.
- PRIMER EP-1040: epoxy resin to apply on metal or ceramic substrates, improving adherence, absorbing substrate moisture, and regularizing the planimetry of the substrate
- PRIMER EPw-1070: water-based epoxy resin to apply on concrete, asphalt, metal, or ceramic substrates, absorbing substrate moisture and regularizing the planimetry of the substrate.
- PRIMER WET: epoxy resin to apply on very wet concrete or ceramic substrates, improving adherence, absorbing substrate moisture, and regularizing the planimetry of the substrate.
- TECNOTOP 2C: two-component, glossy, and colored aliphatic polyurethane resin, to protect walkable and vehicular roofs and floors against UV rays when there is no other protection.
- TECNOTOP 2CP: two-component, glossy, and colored aliphatic polyurethane resin to protect against UV rays and chlorinated/salted water in swimming pools, lakes, and aquariums when there is no other protection.
- TECNOTOP 1C: single-component, glossy, and colored aliphatic, for non-walkable/maintenance roofs against UV rays when there is no other protection
- TECNOTOP S-3000: two-component, polyaspartic, aliphatic, colored, fast-curing resin for coating for protection against UV rays, quick dry time, and excellent chemical and mechanical characteristics.
- TECNOPLASTIC F/C: plastic particles (two different weights) that, once mixed, form a rough surface, even complying with the CTE DB SUA1 (Slipperiness of floors), until achieving a CLASS 3 classification (Rd>45) UNE-ENV 12633:2003, according to its dosage (ask our technical department).
- TECNOBAND 100: cold bond deformable band made up of an upper layer of non-woven textile and a lower layer of viscoelastic self-adhesive coating, which together allow it to adapt to the shape of the substrate. This band is ideal when dealing with structural joints and overlapping metal materials.
- TECNOMESH 200 BASE: non-woven woven for previous placement on excessively irregular substrates or in areas of earth or natural substrate.
- MASTIC PU: polyurethane mastic for filling joints (use together with Tecnoband 100 when necessary).



TECHNICAL DATA OF COMPONENTS

PROPERTIES	COMPONENT A	COMPONENT B*
Density ISO 1675	1,11±0,03 g/cm ³	1,09±0,03 g/cm ³
Viscosity (at 12 rpm) ISO 2555	850±50 cps	1.500±400 cps
Mix ratio – in weight	100	102
Mix ratio – in volume	100	100

* Data for component B pigmented in gray. For other colorations or neutral, consult the official COA issued by Tecnopoli (Certificate of Analysis for each batch delivered). Results performed in the laboratory at 23°C and 50% RH, under controllable conditions.

ASTM

PROPERTIES	RESULT
Tensile strength ASTM D412:2016 (Method A)	20,48 MPa
Elongation at break ASTM D412:2016 (Method A)	605 %
Hardness Shore A ASTM D2240:2015	97
Hardness Shore D ASTM D2240:2015	52
Tear strength ASTM 624-00:2012	101,6 N/mm
Water vapor transmission ASTM E96/E96M-16	0,19 g/sqm/day
Taber abrasion (H18 wheel, wear index) ASTM D4060:2014	152,0 mg
Taber abrasion (H22 wheel, wear index) ASTM D4060:2014	113,0 mg
Water absorption ASTM D570-98:2018	0%
Impact resistance ASTM G14-04:2010 e1	55,68 kg.cm
UV accelerated weathering (1000hours) ASTM G154-16	No blistering/no cracking/no chalking/no peeling/no delamination
Crack Bridging ASTM C1305/C1305M-16 and ADM/CE/002:2017	<ul style="list-style-type: none"> No cracks occurred after 10 cycles at 8 mm Crack at 12 mm width

Results performed in the laboratory at 25°C (73°F) and 50% RH, under controllable conditions. These values may vary depending on the application, climatology, or substrate conditions.



TECHNICAL FEATURES (ACCORDING TO ETA 20/0263)

PROPERTIES	RESULTS
Density ISO 1675	±1,10 ±0,02 g/cm ³
Tack-free time	±5-7 secs
Recoat time	10 secs ~ 48 hours
Use temperature range (environment)	-10 °C ~ 90 °C (14°F to 194°F)
Application temperature range (substrate and environment)	5 °C~ 35 °C (41°F to 95°F)
Maximum environmental humidity	±80%
Elongation at break ISO 527-3	>390%
Tensile Strength ISO 527-3	>19 MPa
Hardness Shore A/D DIN 53.505	>90 / >45
Solid content ISO 1768	100%
VOC content (volatile organic compounds)	0
Working life	W3:25 years (minimum thickness 1,4 mm.)
Climatic zone	S (hard weather)
Resistance to water vapor diffusion EN 1931	μ=1.700
Water vapor diffusion ISO 7783	0,045 g/ (sqm/day)
Temperatures / User loads	<ul style="list-style-type: none"> • P3:TH4-TH1, for XPS • P4:TH4-TH1, for concrete and steel
Construction element slope	S1~S4, zero slope, ponding water admitted
Fire reaction EN-ISO 13501-1:2019	Euroclass E
Adhesion to concrete/Steel/XPS	3000 kPa/3600 kPa/86 kPa
Hail impact test TUV Rheinland	Pass at 1,5 mm. on aluminum / glass-fiber supports
Anti roots certificate EN 13948:2008	PASS

Results performed in the laboratory at 25°C (73°F) and 50% RH, under controllable conditions. These values may vary depending on the application, climatology, or substrate conditions.

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