



## DESMOPOL - SINGLE COMPONENT, POLYURETHANE WATERPROOFING MEMBRANE

DESMOPOL is a single component liquid made up from pure polyurethane, which once catalyzed forms a continuous elastic membrane, without any joints, overlapping or any integrated mesh needs. Its properties make it an excellent choice for achieving air-tightness and perfect waterproofing on a multitude of surfaces and substrates. It is applied manually, using a roller or brush and, exceptionally, using specific spray equipment.

It has CE marking on the basis of a statement made DoP Declaration of Performance (DoP) conforms to the regulations UE305/2011, It has a European technical approval ETA 10/0121 and BBA 16/5340 (W3: working life 25 years, 1,2mm minimum thickness).



## USES

Polyurethane liquid membrane system, for waterproofing or coating:

- ROOFING: Flat, low or steep-slope roof, balconies, and overhangs. (ETA 10/0121 "Liquid Applied Roof Waterproofing Kit, based on polyurethane" and BBA 16/5340)
- FLOORING: Walkable floors with waterproofing and hard-wearing requirements, including an approved non-slip finish (ENV-12633:2003)
- Structural concrete slabs, and concrete walls and foundations
- Metal and asbestos roofs
- Swimming pools, artificial lakes, and ponds
- Green roof and walls (ETA 10/0121 y BBA 16/5340)
- IRMA roofing system
- As protection over TECNOFOAM (spray polyurethane foam)

**NOTE:** call our technical department about the application to other supports or situations

	WITHOUT DESMOPLUS	WITH DESMOPLUS
Recommended thickness	± 1,5 mm	± 1,5 mm
Dry time at 23°C	± 5~6 hours	± 1~3 hours
Elongation at break at 23°C	>600%	>400%
Tensile strength at 23°C	2~3 MPa	4~6 MPa
Application methods	By roll, brush or "airless" equipment	By squeegee, trowel, brush or roll
Widespread systems	± 2~3 thin layers by roll or brush to achieve the recommended thickness	Single layer to achieve the recommended thickness



## COLORS

	White
	Grey
	Red

## GENERAL FEATURES

- DESMOPOL is a highly elastic and wear-resistant membrane that, once applied, offers great stability, durability and waterproof certified (see ETA 10/0121 and BBA 16/5340)
- Thanks to its versatility DESMOPOL adapts to any surface, making it the ideal product for application on uneven surfaces and in areas of any shape, whether curved or squared.
- No surface reinforcement is required, only detail works encounters with other building elements. (see ETA 10/0121 and BBA 16/5340)
- Green roof application certified according to EN 13948( on ETA 10/0121 and BBA 16/5340)
- DESMOPOL membrane can be applied in an only single layer (minimum thickness recommended 1,5 mm) by mixing with DESMOPLUS, this fact upgrades their physical performances, increases the execution speed and thus reduces the direct costs of the application, forms a solid membrane without bubbles inside. With this system, do not use an airless machine. Do not use this additive with temperatures above 35°C, or in any case, store the drums in cool and not sunny areas.
- Applying DESMOPOL saves in seals and any other kind of joins, as the finish is uniform and makes up a single layer, providing a surface with optimum maintenance and cleaning properties.
- The DESMOPOL polyurethane membrane system should be applied in dry conditions avoiding the presence of humidity or water coming from the surface to be coated or the substrate, whether at the time of application or subsequently (pressure from phreatic water level).
- If there is humidity or moisture in the substrate at the time of application, check the technical specifications of our primers where the maximum support humidity ranges are specified.
- The DESMOPOL system requires solar radiation protection (UV rays) because is an aromatic membrane, so, in the absence of other physical protection elements, we recommended the application of our colored resins TECNOTOP 2C/2CP/1C
- The DESMOPOL system's properties enable it to bond to any surface, such as cement, concrete, polyurethane foam, butyl, and bituminous sheets wood, polyurethane plates, metal, etc.
- 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 TECNOPLASTIC range)
- DESMOPOL is immune to temperature changes of between -40°C and +80°C, conserving its elastic properties.
- The DESMOPOL polyurethane membrane is a self-leveling membrane. It can be used on low and steep slope roofs. It requires DESMOTHIX additive for slopes of more than 1,5% of a gradient. Mix DESMOTHIX maximum ratio 1liter for each 25 kg of DESMOPOL. You could apply on thin several layers too.
- Do not use airless equipment when you apply with DESMOTHIX or DESMOPLUS
- Ceramic flooring can be placed on top. In this case, it is appropriate to apply a thin layer of PRIMER PU-1000(50~60 g/m<sup>2</sup>) and it still not dry, sprinkle a load of SILICA SAND to improve the mechanical anchoring



- Ceramic flooring can be placed on top. In this case, we recommended to spread a well-distributed load of SILICA SAND to improve mechanical anchorage in the last layer of DESMOPOL, or if it has already catalyzed, spreading a layer of 50 to 60 g/m<sup>2</sup> PRIMER PU-1000, for anchoring the SILICA SAND
- It can be used to fill fissures and joints, using DESMOPLUS (see TDS of booth products)
- The repairs are easily localizable and are easy to carry out (see "REPAIR AND OVERLAPS PROCEDURES")

## THICKNESS AND RECOMMENDED YIELD

The recommended minimum thickness is up to 1,5 mm, so the yield will be up to 2,0~2,4 kg/m<sup>2</sup> (DFT) applied on ONE or various coats, depending on the application method and application conditions.

## PACKAGING

Metal tins with three different formats: 6 kg / 25 kg.

## SHELF LIFE

12 months at temperatures between 5°C and 35°C, provided it is stored in a dry place. Once the tin has been opened, the product must be used immediately.

## SURFACE PREPARATION

In general, you should take the following factors:

- Surface reparation ( fill the cracks and fissures, remove old existing waterproofing paints...).
- Clean up the surface, removing dust, oils and grasses, and existing chippings.
- Support will be strong and dry.
- The supports must be firm and dry. No moisture or humidity inside or by capillarity from the backfill.

You can apply DESMOPOL liquid waterproofing membrane over several supports and materials. Below we set out some of the applications for the most common surfaces; for other surfaces not described, please call our technical department.

### Concrete substrate

Recommended application typology: single coat application (mixing DESMOPLUS)

- 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.
- any concrete latencies or release agents should be eliminated and an open-pore surface achieved by grit blasting, milling or sanding.
- any cracks and damaged areas must be repaired using an epoxy mortar, mixing our epoxy resin PRIMER EP-1020 with silica sand (ratio of  $\pm 1:4$ ), or the same resin mixed with calcium carbonate (ratio of  $\pm 1:2$ ).
- MASTIC PU must be used on fissures or small cracks on the surface.
- existing joints or seals: remove the old material, clean up and fill with MASTIC PU and TECNOMESH 100 matting.
- next, clean up well and eliminate all contaminants from the elements, such as dust or chippings, using dry methods preferably.
- apply the primer resin in the conditions and the parameters indicated in the technical specifications for these



products. On concrete, we recommended the two-component resins PRIMER PU-1050 / PRIMER PU-1000 / PRIMER PUc-1050 / PRIMER E-1020. See the TDS of each product before the application

- apply DESMOPOL polyurethane membrane (**Single coat application or Application by coats**)
- UV rays protection: aliphatic polyurethane resin TECNOTOP 2C, fill with a green roof, apply ceramic tiles on top...according to the ETA 10/0121 and BBA 16/5340. The application of the TECNOTOP 2C can be done by short hair roller type equipment "airless", consumption and desired thickness depending on the final use of the element (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on a walkable or non-walkable roof or only for maintenance.

### **Metal substrate**

Recommended application typology: mechanical application

- metal surfaces should be prepared using sand-blasting, in order to improve the surface's mechanical fixation properties. In many cases, the application of corrosion inhibiting products will be required.
- check the seals and overlaps and where necessary seal with MASTIC PU and use TECNOBAND 100 to reinforce.
- for a quick and efficient cleaning up of the surface using a ketone-based solvent.
- apply prior priming using our PRIMER EP-1040 or PRIMER EPw-1070, to improve surface bonding. See the technical specifications of this product, on his TDS.
- application of DESMOPOL (**Mechanical application, "airless" equipment**)
- UV rays protection: aliphatic polyurethane resin TECNOTOP 2C, fill with a green roof, apply ceramic tiles on top...according to the ETA 10/0121 and BBA 16/5340. The application of the TECNOTOP 2C can be done by short hair roller type equipment "airless", consumption and desired thickness depending on the final use of the element (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on the a walkable or non-walkable roof or only for maintenance.

### **Ceramic tiles substrate**

Recommended application typology: application by coats with intermediate reinforcing (using TECNOMESH 100)

- 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 TECNOBAND 100
- sanding with specific equipment. Thereby, to remove moss or solids particles bonded to the support, and to open the pore.
- clean up, using a vacuum method.
- apply prior priming using our PRIMER EP-1040 or PRIMER EPw-1070, to improve surface bonding. See the technical specifications of this product, on his TDS.
- application of DESMOPOL (**Application by coats with intermediate reinforcing**)
- UV rays protection: aliphatic polyurethane resin TECNOTOP 2C, fill with a green roof, apply ceramic tiles on top...according to the ETA 10/0121 and BBA 16/5340. The application of the TECNOTOP 2C can be done by short hair roller type equipment "airless", consumption and desired thickness depending on the final use of the element (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on the a walkable or non-walkable roof or only for maintenance.

### **Bitumen Membranes**

Recommended application typology: application by coats with intermediate reinforcing (using TECNOMESH 100)

- existing joints or seals: remove the old material, clean up and fill with MASTIC PU and reinforced using TECNOBAND 100



- light sandblasting of the surface, to remove chips and dirt
- clean up, using a vacuum method.
- apply prior priming using our PRIMER EP-1040 or PRIMER EPw-1070, to improve surface bonding. See the technical specifications of this product, on his TDS.
- application of DESMOPOL (**Application by coats with intermediate reinforcing**)
- UV rays protection: aliphatic polyurethane resin TECNOTOP 2C, fill with a green roof, apply ceramic tiles on top...according to the ETA 10/0121 and BBA 16/5340. The application of the TECNOTOP 2C can be done by short hair roller type equipment "airless", consumption and desired thickness depending on the final use of the element (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on the non-walkable roof or only for maintenance.

## APPLICATION TYPOLOGIES

Once the surface preparation and primer application are done, as conditions, proceed to apply the polyurethane membrane, using the following methods:

### Application by coats (traditional or classical application )

- Open the DESMOPOL metal tin and stir up to homogenize
- Extended the first layer using a short hair roller, a maximum thickness of 0,7 mm. (1,0 kg/m<sup>2</sup>) . Applying the material without dilution.
- Wait for complete drying (depend on the weather conditions), about 5~6 hours
- Then, apply the next layer, in the same way as above
- Repeat this process as many times as necessary to achieve the desired or recommended thickness.

### Application by coats with intermediate reinforcing (using TECNOMESH 100)

To be used in ceramic supports, torch and felt, bitumen membranes in general, in cracked supports, or that have contraction or dilation movements

- Open the DESMOPOL metal tin and stir up to homogenize
- Extended the first layer using a short hair roller, a maximum thickness of 0,7 mm. (1,0 kg/m<sup>2</sup>) . Applying the material without dilution.
- Extent TECNOMESH 100 on the wet resin, and push using a dry roll
- Then, apply the next layer of DESMOPOL, two options:
  - OPTION #1: wait for the total drying of the first coat, approx. 5-6 hours, and apply the next layer
  - OPTION #2(Wet and Wet): apply DESMOPOL on the still wet previous coat.

In this case, consumption can increase from the application without mesh.

### Single coat application (mixing DESMOPLUS)

- Pour DESMOPLUS inside the DESMOPOL metal tin, always in the fixed ratio supplied by the manufacturer. Continuous mixing with medium-speed mechanical equipment (pot life: ± 25 min.).
- Pouring of the material formed directly on the support, and spread using Use of trowel, squeegee or rubber lip. (a roll can also be used too).
- This process is unique, whereby the desired thickness is obtained in one operation, eliminating intermediate waiting times, ensuring the formation of the membrane without internal bubbles, getting more tensile strength and reducing the global drying time.
- The use of a mechanical equipment mix it's not recommended when DESMOPLUS is used.
- if it is necessary to add DESMOTHIX due to the slope of the roof, you can add a maximum 250 ml of this ( per 25 kg DESMOPOL pail ).



- Check all the waiting and drying times, application conditions (see the TDS)

#### Mechanical application ("airless" equipment)

- Add 5~10% solvent DESMOSOLVENT into DESMOPOL metal tin. Mix the drum with medium speed mechanical equipment.
- Apply thin layers using specific equipment.
- Wait for total drying.
- Repeat this process until the desired or recommended thickness.

#### Notes:

- Consult in all cases the waiting times, drying time, detail works, conditions of application of all the products through the technical data sheets of each product or consult our technical department.
- For other types of supports/substrates, for further information on the execution application procedure, for any additional questions, please, consult the technical data sheets (TDS) of these products, or our technical department.
- These guidelines are valid although they can be modified, according to the situation of the supports, conditioning of the bearing structures of the elements to be waterproofed, external climatology or situation at the time of application

## REPAIR AND OVERLAPS PROCESSES

### REPAIR

In cases where the membrane repair by accidental causes, or assembly procedures not covered installations that require drilling on polyurethane membrane DESMOPOL, the procedure is required, 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 (50-100g/m<sup>2</sup>) of polyurethane resin PRIMER PU-1000
- light spread SILICA SAND over the wet primer applied before
- wait for the total drying
- apply DESMOPOL with DESMOPLUS
- apply TECNOTOP 2C/2CP (according to ETA 10/0121 and BBA 16/5340), in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done with short hair roller type equipment "airless" (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on a walkable or non-walkable roof or only for maintenance.

### OVERLAPS

In cases has been exceeded recoat time (48~72 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 thin layer (50-100 g/m<sup>2</sup>) of polyurethane resin PRIMER PU-1000.
- light spread SILICA SAND over the wet primer applied before
- wait for the total drying
- apply DESMOPOL with DESMOPLUS
- apply TECNOTOP 2C/2CP (according to ETA 10/0121 and BBA 16/5340), in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done with short hair roller type



equipment "airless" (see the conditions of application in the product datasheet TDS). You can apply too TECNOTOP 1C on a walkable or non-walkable roof or only for maintenance.

## HANDLING

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.

Anyway, consult the material and safety data sheet of the product (MSDS)

## COMPLEMENTARY PRODUCTS

The DESMOPOL system may be complemented with the following products as a means of protection or to improve its physical-mechanical properties depending on its exposure, the desired finish or the type of substrate.

- PRIMER EP-1020: mixed with silica sand (ratio±1:4), or calcium carbonate (ratio±1:2) this is used to fill in depressions in concrete surfaces, rapidly providing a firm and fast drying even base.
- PRIMER PU-1050 | PRIMER EP-1040 | PRIMER EPw-1070 | PRIMER WET |PRIMER PUc-1050 | PRIMER PU-1000 |PRIMER EP-1020: These primers are applied on the substrate beforehand to improve bonding and level the surface, as well as regulating the humidity in the substrate (see permitted levels in their technical datasheet).
- TECNOTOP 2C: two-component colored aliphatic polyurethane resin used to protect walkable roofs and floors or ground against UV rays when there is no other protection. (according to ETA 10/0121 and BBA 16/5340)
- TECNOTOP 2CP: two-component colored aliphatic polyurethane resin used to protect against UV rays (according to ETA 10/0121 and BBA 16/5340) and chlorinated water when waterproofing swimming pool, lakes. Migration approval on water according to EN ISO 12873-2:2005.
- TECNOTOP 1C: single component colored aliphatic resin used to protect a walkable or non-walkable roofs against UV rays when there is no other protection
- TECNOTOP S-3000: two-component, aliphatic, colored, cold polyurea resin for protection against UV rays, in situations of decks or floors without additional protection. Excellent for vehicular cover applications, quick-drying, and setting up.
- TECNOPLASTIC : this plastic powder, once mixed with TECNOTOP 2C/2CP, forms a rough surface, conforming even to norm ENV 12633: 2003(floors slipperiness), to achieve Class 3 (>45 slip resistance), depending on dosage (consult our technical department).
- DESMOPLUS: the additive that allows the application of the membrane DESMOPOL IN A SINGLE-USE. Especially in applications on wet or cold climatologies, improve mechanical properties, and reduces the membrane's drying and curing time(see TDS)
- DESMOTHIX: an additive that provides thymotropic properties, specifically designed to be mixed with DESMOPOL to enable application on vertical surfaces.
- TECNOBAND 100: the cold bond deformable band made up of an upper layer of non-woven textile and a lower layer of viscose 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.
- MASTIC PU: polyurethane mastic for filling joints and fissures (use together with TECNOBAND 100 when necessary).
- TECNOMESH 100: fiberglass mesh to reinforce the solid membrane (joints, upstands...)

**NOTE:** see all the TDS of all products, or consult our technical department



## TECHNICAL DATA (ACCORDING TO THE ETA 10/0121 AND BBA 16/5340)

PROPERTIES	VALUES
Specific gravity at 23°C ISO 1675	1,45±5 g/cm <sup>3</sup>
Viscosity at 23 °C ISO 2555	3.500~4.200 cps
Dry extract at 105 °C % weight EN1768	>90
Flash Point ASTM D93	42 °C
Ashes at 450 °C % weight	42~47%
Solid content ISO 1768	82-85%
VOC declaration	240 g/l
Working life of the system (according to the EOTA and BBA)	25 years W3: 25 years and 1,2 mm thickness
Roof slope	S1~S4 (zero slope)
Fire reaction	Euroclass E
External fire performance EN 13501-5	Broof (t1)+ (t4)
Resistance to wind loads	ABLE>50KPa
Anti roots certification EN13948	YES
Support/environment range temperatures	5 °C~35 °C
Hardness Shore A at 23 °C DIN 53.505	>85
Hardness Shore D at 23 °C DIN 53.505	>35
Tear Strength, (longitudinal)trouser, angle, and crescent test pieces ISO 34-1:2011	24 KN/m
Tensile strength at 23°C without DESMOPLUS ISO 527-3	2~3 MPa
Tensile strength at 23°C with DESMOPLUS ISO 527-3	4~6MPa
Elongation at break at 23°C without DESMOPLUS ISO 527-3	>600%
Elongation at break at 23°C with DESMOPLUS ISO 527-3	>400%
Initial dry time at 23 °C and 55% relative humidity without DESMOPLUS	±5~6 hours
Initial dry time at 23 °C and 55% relative humidity with DESMOPLUS	±1,5 hours
Recoat time without DESMOPLUS	±5~48 hours
Recoat time with DESMOPLUS	±1,5~24 hours
Water vapor resistance EN 1931	μ=2.500
Water vapor permeability EN 1931	1 g/m <sup>2</sup> /day
Concrete adherence at 23°C	>2MPa

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recommends that the reader make tests to determine the suitability of a product for a particular purpose prior to use.

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All data furnished refers to standard production using manufacturing testing tolerances. The product user, and not Tecnopol Sistemas S.L.U., is responsible for determining the suitability and compatibility of our products for the final user's intended use.

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