tecnocoat

ROOFING
WATERPROOFING SYSTEM

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TECHNICAL GUIDELINE



Tecnopol®
we develop value.com





ETA 11/0357

BBA 16/5340

DTA DOCUMENT TECHNIQUE D'APPLICATION

ROOFING
WATERPROOFING SYSTEM

The best system for the most difficult projects.

TECNOCOAT P-2049 is a waterproofing system based on pure polyurea that forms a solid, continuous and seamless membrane of the highest quality in formulation and manufacture.

With this system, you can waterproof and protect any project, whatever its form, surface material or final needed.

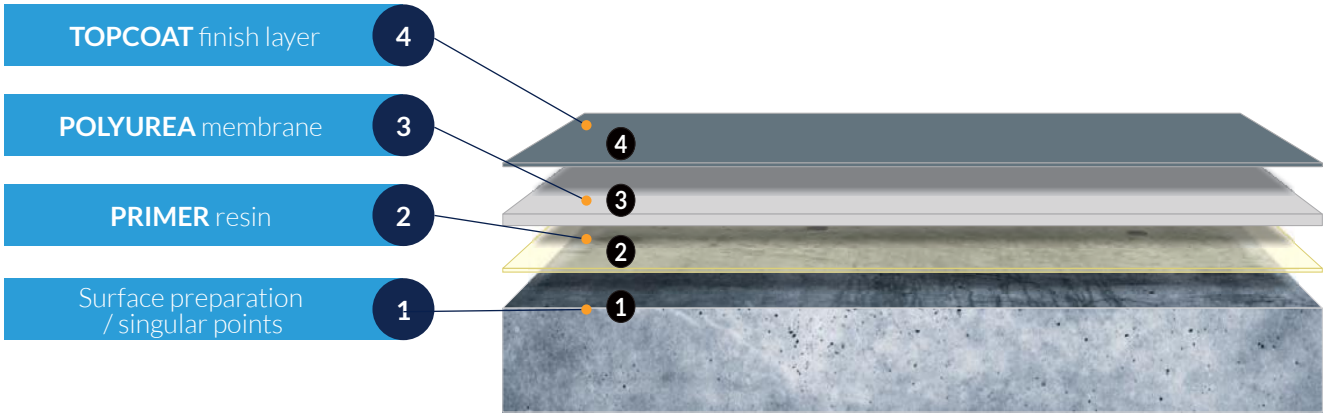
The quality of the system applied is recognized worldwide with numerous certifications and approvals (EOTA, BBA, CSTB, ASTM, EN, ISO...). **TECNOPOL's** technical stuff is very satisfied with the results that offers both designers, engineers, architects, or builders.

The experience of the leading manufacturer in Europe in PUA, puts in the hands of the application companies an efficient and optimal waterproofing system, offering in this areas of the civil engineering, or residential construction, practical solutions with which to achieve the required professional success.

CE
EN 1504-2



Roofing
General outline



BENEFITS

1. **Fully adhered systems:** protection of the structural support element (CE Marking under EN 1504-2).
2. **Complete and absolute protection** of the construction element.
3. **Zero slope application,** it works under ponding water (ETA 11/0357 y BBA 16/5340).
4. **Direct application to the existing substrate:** waste generations limited, which contributes to an improvement in the construction sustainability.
5. **Faster setting:** labor time reduction, cost optimization.
6. **No extra weight on the existing structure** (only ±2,5-3 kg/sqm).
7. **Cost reduction:** not need to apply mortar coats to protect it.
8. **Several finishing** (colors and surface textures), according to the existing slippery international approvals and regulations.
9. **High resistance to the temperature:** no collapse of the membrane due to environmental causes.
10. **Working life (W3:25 years):** high quality of the applied system+ maximum durability warranties.
11. **Plant root penetration resistance approval** (ETA 11/0357 and BBA 16/5340).

Application parameters
Preliminary considerations

For the optimum application of the **TECNOCOAT** system (adherence, required use, decorative finish and/or applicable regulations) conditioning aspects, such as weather and physical properties of the substrate, need to be identified.

SURFACE HUMIDITY/WATER

Humidity on the substrate can affect the membrane's adherence. Humidity or the presence of water in/on the substrate hamper adherence, which will have a negative effect on the result of the system. It is recommended that their system is not applied before the concrete curing process has finalized (28 days)

It is essential the application of the product is aware of and takes into consideration this aspect, carrying out the corresponding verifications in all areas of the substrate in order to decide on the type of primer to be used, or whether or not another treatment is required. (vapor barrier)

The different types of humidity or the presence of water in/or the substrate or their characteristics may be as follows:

- **Liquid water/moisture:** There must not be any water present, whatever the type of substrate, as the will completely annul the membrane's adherence (in some cases, use **PRIMER WET**, please, check our technical department)
- **Hydrostatic water:** The existence of rising damp, (water coming up through the element), is not compatible with continuous membrane WATERPROOFING SYSTEM and, therefore, this situation will have to be resolved via onsite application of water-vapor permeable hydraulic materials or the installation of floating floors, etc.
- **Dew point:** This is a factor to take into consideration at the start of applying systems such as ours, which for the most part are used outside and deepended, as mentioned, on a level of control of the substrate humidity. The appearance of humidity from dew depends on the air and substrate temperature and the relative ambient humidity. To prevent this, the substrate's temperature should be 3 degrees Celsius above that corresponding to the dew point (see the universal dew point charts).

SUBSTRATE AND AMBIENCE TEMPERATURES

These are two conditioning aspects that could affect the membrane curing process, along with that of the ambient temperature.

- Ambiance range of temperatures: 3ºC to 45ºC.
- Substrate range of temperatures: 5ºC to 40ºC.

Although, based on our experience and due to the chemical nature of some of the products that make up the system, we do not recommend working at ambiance temperatures below 3ºC.

SUPPORT'S PHYSICAL CONDITIONS

Coating performance is dependent on adequate surface preparation and application.

The optimal surface preparation will increase the bonding on the surface, and this is essential for three reasons:

- Good bond allows the structure and coating to work as one and maintain stability.
- Prevents salt and contaminated water from leaking through the concrete (extremely important in steel, to protect from rust and corrosion).
- Avoid the formation of pinholes on membrane in the moment of the application.



Phreatic water presure not allowed.

1a. Surface Preparation

CONCRETE

The concrete surface, where we go to apply our waterproofing system, needs to be prepared, as follows:

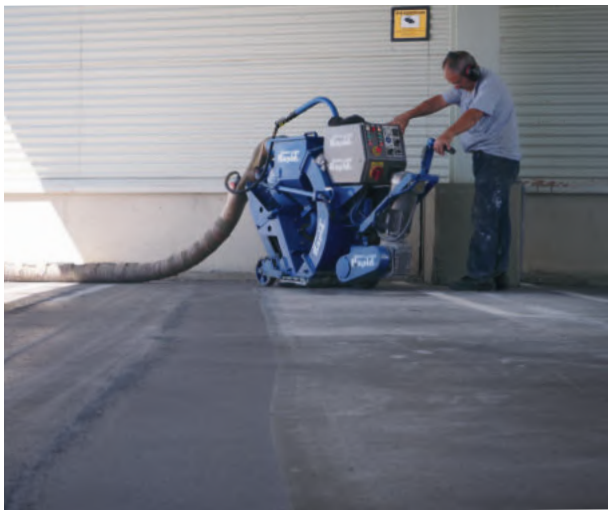
- Remove oils, greases, silicones or other contaminants.
- Fill the depressions on the surface (caused during the concrete pouring process), using **PRIMER EP-1010** epoxy mortar. Fill fissures and cracks using **MASTIC PU**.

Finally, a mechanical preparation is needed, to get a uniform roughened surface and to remove the laitances, using one of these systems, thus achieving a flat surface with a continuous roughness (CSP 4 to 6), following the ICRI recommendations.

People applying the system must decide in each case the most suitable method, depending on the conditions of the substrate or surface or the desired result (always in combination with the primer to be used).

To complete these processes prior to application, the substrate must be cleaned using dry systems (vacuum cleaner).





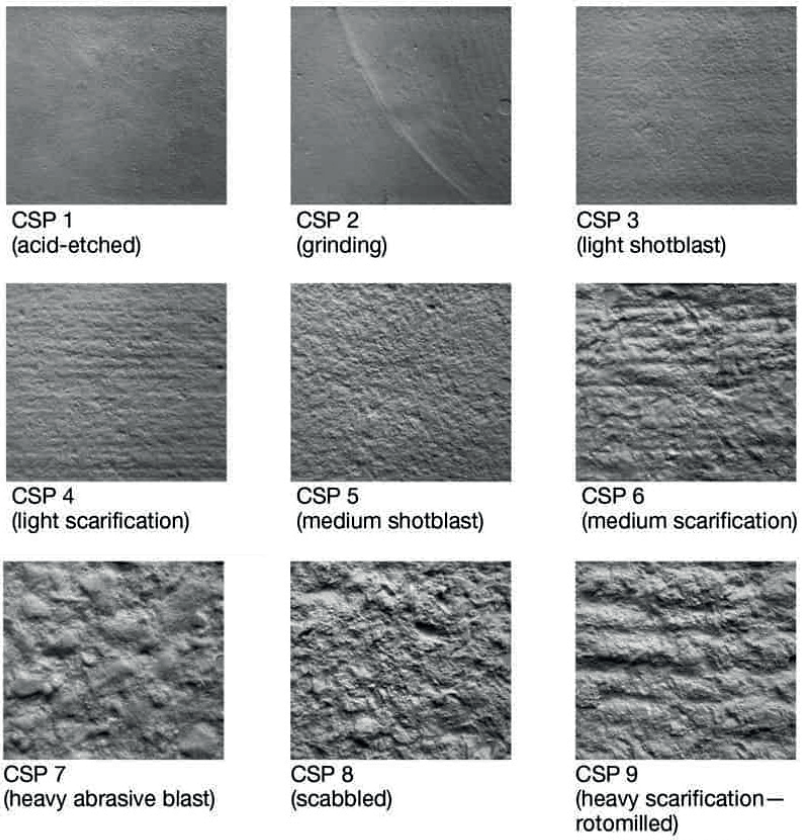
PROCESSES TO ELIMINATE THE LAITANCE ON THE CONCRETE

Grinding/Milling:
Using a rotary machine with specialty grinding wheels with tungsten carbide; this method is suitable for removing concrete paste and other hard substances. It causes surface erosion by rubbing with stones or hard sanding discs. This removes the softest parts of the surface, for example surface laitance, which sometimes occurs during concrete pouring or curing. But is not suitable for soft existing coatings or when the friction caused heat meets this product.

Sandblasting:
Generally employs sand or a sand type of abrasive shot by compressed air through a nozzle. Sandblasting is recommended for horizontal, vertical, and overhead use. This method is recommended for removal of the surface of concrete, existing sealers, and hard coatings. Creation of dust may be prohibited by environmental regulation. Vacuum mechanisms are available to remove dust from the air. Wet sandblasting is available that complies with environmental regulations. Remove shot material, dust, and mud residues according to environmental regulations. This method of surface preparation, while highly effective, has lost utility where environmental regulation has restricted its use.

Scarifying:
Generally employs a rotary or drum machine. This method utilizes specialty blades or impact devices to break the surface of concrete or coatings. Several passes over the same area may be required to remove existing surface completely. In the case of elastomeric surface coatings, blade shaving may be the only effective method of removal where water use is a problem. Most sealers and coatings will not allow removal by acid etching. Most elastomeric coatings have a tendency to "bounce" shot blasting.

Shot blasting:
It involves the projection or direct impact of steel grit of different sizes on the concrete's surface. This process produces very little dust. Shot is generally recoverable. Some water cleaning or vacuuming may be required after use of this method. This is effective for removal of concrete surface paste, sealers, and hard coatings. Speed over an area and number of passes over an area determine depth of removal. Edging and small spaces are not susceptible to this type of removal without small specially designed equipment.



Finishing profiles according to ICRI

Ensure that there isn't the presence of contaminants such as oils, greases, silicones... (as additives used in the pouring process of the concrete).

METAL

Most of these metallic surfaces (pre-lacquered metal sheets, copper, zinc, galvanized sheets, etc.) will require blast cleaning, particularly when the area to be treated is vertical or sloped. This process can be carried out using either a dry blast of **SILICA SAND** or water. The method used will depend, to a large extent, on the metal and its fragility.

1.- BLAST CLEANING

The most usual methods used for this type of preparation are dry and wet blasting.

Dry blasting is carried out using portable equipment that has a pressurized hose inside a larger evacuation hose. The external hose collects the blasting grit after blasting, taking it to the central unit for recovery and recycling, with which this equipment can be used for sizable projects outside with specialized means without any problems.

Wet blasting, abrasive particles are added to an aqueous medium to form a kind of slurry mixture. This aqueous mixture is continuously shaken to prevent its solidification and pumped using compressed air via one or several nozzles pointed at the surface to be treated. The liquids most commonly used to suspend the abrasive particles are water-based additives, such as oxide inhibitors, moistening agents and anti-clogging and anti-solidification compounds.

Note: the liquids most commonly used to suspend the abrasive particles are water-based additives, such as oxide inhibitors, moistening agents and anti-clogging and anti-solidification compounds.

In most of the cases (tanks or reservoirs) to prevent corrosion or rust, especially after an abrasion process is recommended passivate: applying oxidation inhibitors before to application of the primer's waterproofing system.

In some cases, if you did a special sandblasting achieving an SSPC SP-10 or similar, you could apply directly the membrane without using a primer before (always check the adhesion before).

2.- CLEANING

Subsequent cleaning of these types of surfaces can be carried out with pressurized water or, in most cases and when most suitable, using acetone-based solvents to simultaneously clean and remove any grease from the surface, with rapid evaporation of the cleaning product. In many cases, the surface passivation is required before application of the products.

After the abrasion process, and before the waterproofing system application, it is necessary to apply corrosion inhibitor products.



3.-DETAIL WORK

At the same time these substrates, usually made up of overlapping metal plates, should be encapsulated with **MASTIC PU** and **TECNOBAND 100** (see technical specifications on TDS) applied to joints, screws, nuts and bolts and, in general, any building component that could shift due to expansion. Polyurethane foam may also be used to fill in areas between the plates to ensure a physical support surface for the membrane.

The water channel has to be sealed also because otherwise in cases of hard rainfall, it may not be able to absorb the entire water load. It is for this reason that the inner part of the channel matches the roofline of the plates shall be completely sealed with the help of previous fill or **MASTIC PU** or **TECNOFOAM**, to apply after the membrane layer of polyurea. All joints will be treated according to the existing Section 6.3 of this manual.



CERAMIC SUBSTRATE

With this kind of substrate, the most common problem is the existence of pieces not adhered to the slab, in which case it is important to remove these and fill in the area with our **PRIMER EP-1010** epoxy resin to even out the surface.

A dry cleaning method is best, avoiding those that use water as this penetrates inside the tiling, between the intermediate layers, with which evaporation is very slow. In this case, the floor surface is sanded to achieve, simultaneously, waste disposal, or fat powder, and increased mechanical anchoring system as the pore opens the ceramic surface.

If water is used for cleaning, always check the level of humidity or water retained inside the material's layers, to decide when to continue the application.

In any case, even when water is not used to clean, the humidity of the substrate should be checked.

You will need also the grouting the joints or sores of the ceramic pieces, and cleaned and repair the existing expansion joints by removing the existing material, cleaning, filling with **MASTIC PU**, and band placement **TECNOBAND 100** (see technical specifications for these products) at the top.

LAMINATED SUBSTRATE (BITUMINOUS SHEETS, BUTYL)

The surface should be cleaned using medium pressurized water to remove any dirt, dust or contaminants.

Check the overlaps on different sheets: they must be well bonded.

The application will be made applying initially several

thin coats of **TECNOCOAT** over existing material, to then start the regular application with the required performance.

Depending on the surface finishing of the bituminous asphalt sheet, we will do this:

- On sheet backing fine finish, general surface cleaning will be performed before applying the primer.
- In the case of asphalt with a protective film to reflect the sun's rays, this should be removed, if possible, as in many cases the heat and pressure generated by the application of the polyurea membrane tear this film away.
- In the case of asphalts with a protective finish (rough) or standard smooth finish, cleaning may be carried out directly.

Always check that no dampness or water has been retained within these laminates or between these and the substrate if there were any prior fractures.

PAINTED SUBSTRATES

In the case of roofs or surfaces with old acrylic paint for restoration or waterproofing, first, any peeling or unstuck material on the substrate must be removed by sanding(recommended). The use of a water pressure cleaning requires drying and verification of the humidity levels before applying the membrane. We highly recommend the dry sanding method.

In any case, check the level of humidity or water retained within these paints and the substrate due to either fractures or peeling or the cleaning process.

ASBESTOS SUBSTRATE

In many cases the overlaps of the plates that make up the substrate need to be resealed using **TECNOFOAM** sprayed polyurethane rigid foam (depending on the amount to be applied), as well as checking their overall condition. Likewise, any screws, nuts and bolts in bad condition need to be resealed using **MASTIC PU** polyurethane Mastic or **TECNOBAND 100** (see technical specifications on TDS). Roll of geotextile and butyl self-adhesive **TECNOBAND 100**.



Finally, clean the surface to remove any efflorescence and other elements that could prevent proper adherence of the system's products, using medium pressurized water.

Check the level of water originating from this process before continuing with application of the membrane.

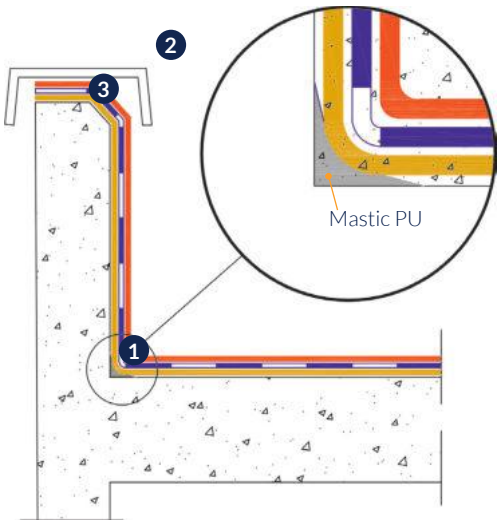


If considered desirable, depending on the situation and the sheet.

Another methodology of the preparation is to apply a continuous coat of **TECNOFOAM** (2-3 cms thickness) before **TECNOCOAT P-2049** system.

1b. Detail work

All architectural details in this section are generic, if you need any specific detail please contact our Technical Department.

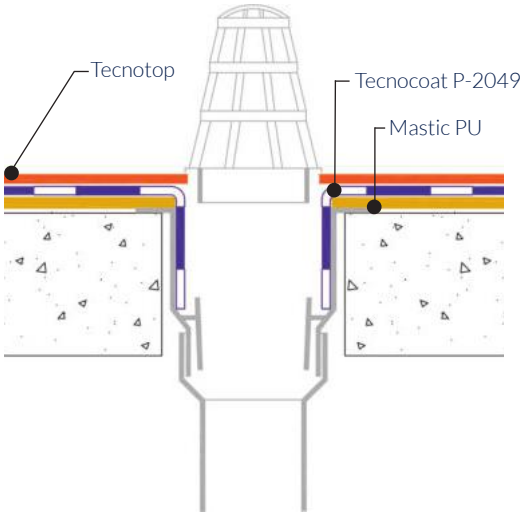


VERTICAL SURFACES
(FLASHING, UPSTANDS, SHARP EDGES)

1. Coving at the point of contact, to provide a good surface for the vertical rotation of the membrane, using **MASTIC PU**, or common mortar.

2. Final membrane's edge, to ensure that not water, rain filter out within the membrane and the wall.

3. In turns or sharp edges on the top of the wall, it should cut them about 45 ° to avoid breakage due to an internal punching.

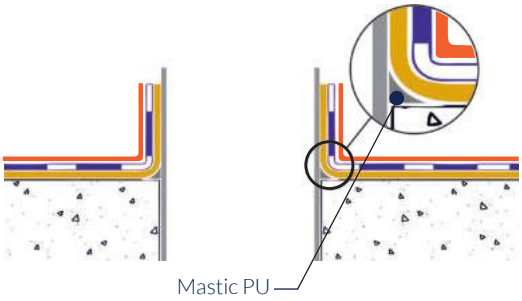


DRAINS

Drains and vertical water drainage should be given a generous coating of the membrane over their entire surface up to the mouth of the drainpipe. To aid in this operation, our **MASTIC PU** may be used to fill in the edges of the drainpipe at its point of contact with the slab.

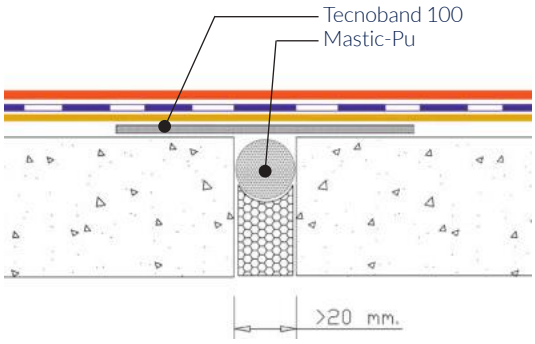
In the case of metal drainpipes, the membrane will be applied in a continuous layer extended inside the drainpipe.





INTERNAL OUTLETS

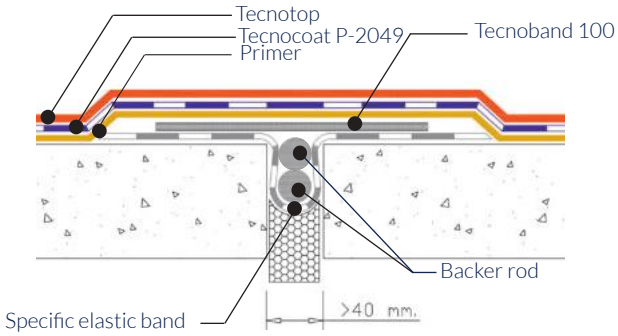
In any internal outlets coving at the point of contact, to provide a good surface for the vertical rotation of the membrane, using **MASTIC PU**.



JOINTS

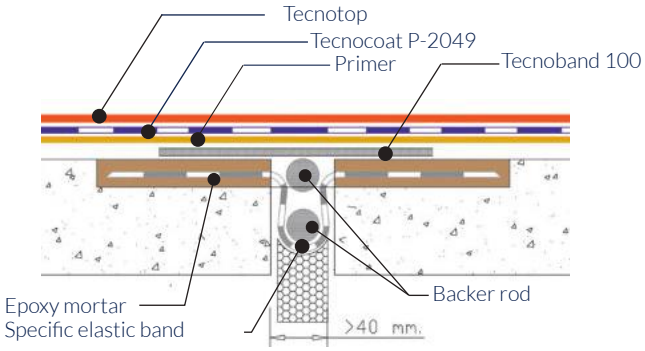
Width size ≤ 20mm: the gap should be opened up sufficiently, cleaned and filled in with **MASTIC PU** (never use silicones) elastic polyurethane Mastic.

Width size 20mm: cleaned and filled in with **MASTIC PU** (never use silicones) elastic polyurethane as well as applying a top seal with **TECNOBAND 100** butyl self-adhesive perimeter band and an upper protection of a geotextile layer in order absorb movements in the joint.



EXPANSION JOINTS

In the case of expansion joints, the stress to be absorbed is greater and, therefore, this element should be treated as a structural element and using special a **specific elastic band**. They should be applied and installed in the areas subject to structural movements according to the TDS.





2. Primer resin

The use of primers when applying the complete **TECNOCOAT** membrane system is important and essential and it is indicated in the approval and certification documentation available of **TECNOCOAT P-2049** (ETA, DTA and BBA).

MAIN PERFORMANCES

- Seal the Surface
- Increase bonding
- Fill irregularities to the existing surface
- Surface moisture absorption, present in the surface during the application process.

APPLICATION METHODOLOGY

1. Check expiry time (existing on the pail label).
2. Open the pails and check visually the product.
3. Prior to mixing, stir component A separately to homogenize it.
4. Add the component B into the component A pail (make sure the component B is fully emptied into the component A).
5. Mix both components using a low speed electric mixer (300 to 400 r.p.m.).
6. Apply by short nap roller, brush or squeegee. The number of coats depends on the physical surface conditions; in most of cases is necessary to apply 2 crossed coats. Wait for the tack free time between coats. You can use airless equipment too, but the pot- life time must be checked to clean the equipment within the indicated time.



This process requires a flat, clean and dry substrate and as hard as possible.









In the tables below you can see the main properties of available primers to use in this system. Pay attention to the "accepted surfaces" and "maximum surface dampness" to make the best choice of primer resin.

	primer EP-1010	primer EP-1020	primer EP-1040	primer EPw-1070
Main use	Surfaces in low-damp conditions	Surfaces in low-damp conditions	Metal surfaces	Surfaces in medium-damp conditions
Accepted surface	Concrete / Ceramic Tiles	Concrete / Ceramic Tiles	Metal / Ceramic tiles / Concrete	Concrete / Asphalt
Components No.	2	2	2	2
Product base	Epoxy 100% solids	Epoxy 100% solids	Epoxy 100% solids	Epoxy water based
Density	± 1,50 g/cm³	± 1,05 g/cm³	± 1,05 g/cm³	± 1,00 g/cm³
Solids content	100 %	100 %	100 %	> 60 %
Concrete adherence	> 2 MPa	> 2 MPa	> 2 MPa	> 2 MPa
Yield per coat	± 250 g/ sqm	± 150 g/sqm	± 150 g/ sqm	± 100 g/ sqm
Initial drying time	50 minutes	60 minutes	60 minutes	5 ~ 6 hours
Recoat time	3 ~ 24 hours	3 ~ 24 hours	4 ~ 48 horas	6 ~ 48 hours
Temperature of use	5 ~ 35 °C	5 ~ 35°C	5 ~ 35°C	5 ~ 35°C
Maximum surface dampness	4%	4 %	4 %	± 10 %
Dilution on water	NO	NO	NO	5 ~ 20 %

	primer PU-1000	primer PU-1050	primer PUc-1050	primer WET
Main use	Surfaces in low-damp conditions	The best option for concrete	For concrete in cold environments	Concrete subject to maximum damp
Accepted surface	Repair and overlaps membranes.	Concrete	Concrete	Concrete / Ceramic tiles
Components No.	1	2	2	2
Product base	Polyurethane solvent based	Polyurethane 100% solids	Polyurethane 100% solids	Epoxy 100% solids
Density	± 1,11 g/cm³	± 1,11 g/cm³	± 1,11 g/cm³	± 1,50 g/cm³
Solids content	> 80 %	100 %	100 %	100 %
Concrete adherence	> 2 MPa	> 2 MPa	> 2 MPa	> 2 MPa
Yield per coat	± 100 g/sqm	± 150 g/sqm	± 150 g/sqm	± 450 g/ sqm
Initial drying time	60 minutes	60 minutes	60 minutes*	3 hours
Recoat time	3 ~ 24 hours	3 ~ 24 hours	3 ~ 24 hours*	3 ~ 6 hours
Temperature of use	5 ~ 35 °C	5 ~ 35 °C	5 ~ 15 °C	5 ~ 35 °C
Maximum surface dampness	4%	± 4 %	± 4 %	± 98 %
Dilution on water	NO	NO	NO	NO

*Yield can vary depending on the substrate condition.

3. Polyurea membrane

TECNOCOAT is an extremely durable, solid and hard-wearing product that, once applied, offers great stability and long-life. Thanks to its versatility and its drying time of between 3 and 5 seconds **TECNOCOAT P-2049** adapts to any surface, making it in the ideal product for application in uneven areas of any shape, whether curved or square.

TECNOCOAT P-2049 has certification ETA 11/0357, BBA 16/5340 and DTA 19/2665 including anti-roots penetration, at 25 years working life, minimum thickness of 1.4 mm (recommended thickness around 2 mm., consumption ±2.1 kg/sqm). This thickness can vary depending on the final use of the waterproofing system. There are other certificates and tests (abrasion, tear...), you can ask for them to the Technical Department.

The packaging of the two products of the pure polyurea **TECNOCOAT P-2049** is served through two drums:

- SIDE A(ISOCYANATES): RED DRUM
- SIDE B(AMINES): BLUE DRUM (pigmented product)

Shelf life is12 months at temperatures between 5°C to 35°C (41 to 95 ªF), provided it is stored in a dry place, keep away from direct sunlight, extreme heat, cold or moisture. Once the tin has been opened, the product must be used immediately. Once opening drum, B side must be agitated mechanically before inserting the transfer pumps and use.

TECNOCOAT P-2049 has certification ETA 11/0357, BBA 16/5340 including anti-roots penetration, at 25 years working life, a minimum thickness of 1.4 mm (recommended thickness around 2 mm, consumption ±2.1 kg/sqm). It holds a DTA 19/2665 Avis Technique certification for the French market intended for walkable roofs.

For the repair and overlaps processes, please see the TDS.





APPLICATION METHODOLOGY

- Open both drums.
- Side (blue drum, amines): Stir/mix to homogenize the pigment inside because in most of the cases, pigment has settled. If you don't do this, previous action to mixing, it could happen color variances, foaming and sticky coating, so poor performance.
- Side A (red drum, isocyanates): prevents exposing to moisture once opened.
- Put the pumps into the drums and connect the hoses to the equipment.
- Start the equipment following the manufacturer instructions.
- Set up the hoses and machine temperatures (check the correct ones in the TDS).

The membrane is applied using spray equipment that takes the two components and it will form the final solid membrane (isocyanates and amines).

Spray gun application should be carried out applying the product always perpendicular to the substrate regardless of whether the surface is horizontal or vertical. This is extremely important as, otherwise, it will not be possible to apply the product completely and continuously, thus causing gaps in the layer and, therefore, incomplete seal. Apply crossed coat continuously as needed to achieve the desired thickness according to the final use or technical requirements. Do not apply more than 3-4 mm thickness in one single coat; there is a risk of cracks in the solid membrane because the high temperature.

	tecnocoat P-2049	tecnocoat P-2049 EL
Recommended for...	 **Concrete**	**Metal**
Component No.	2	2
Density	± 1.10 g/cm³	± 1.15 g/cm³
Elongation	> 350%	> 600%
Tensile strength	> 20 MPa	± 13 MPa
Concrete adherence	> 2 MPa	> 2 MPa
Hardness (shore A)	> 93	> 75
Hardness (shore D)	> 55	> 35
Initial drying time	3 ~ 5 seconds	13 ~ 25 seconds
Recoat time	max. 12 hours	máx. 12 hours
Thickness (Yield)	2 mm (± 2.1 kg/sqm)	1.5 mm (± 1.6 kg/sqm)
Fire reaction	Euroclass E	NPD
External fire behavior	Broof (t1) (t2) (t3) (t4)	NPD
Anti-root	Yes (EN13948)	NPD
Solids content	100%	100%
VOC	0	0
Ponding water works	YES	YES

	MACHINE SETTINGS	
Heater isocyanate temperature	± 70-75 ºC	±78 ºC
Heater amines temperature	± 70-75 ºC	±72ºC
Hose temperature	±70ºC	±72ºC
Pressure	2500-3000 psi	2500-3000 psi
Recommended mixing chamber	GU-07008-1 or GU-07008-2	GU-07008-1 or GU-07008-2



After applying **TECNOCOAT P-2049** wash gently with neutral soap after 2 days and wait a minimum of 7 days before filling the tank.

TECNOCOAT P-2049 is an aromatic polyurea so it must be protected from the UV rays.

4. Aliphatic TOPCOAT

Due to the fact that it is an aromatic membrane it is essential to protect it, as indicated under ETA 11/0357, BBA 16/5340 and DTA, from the UV rays. Therefore, **TECNOCOAT** must be protected using colored, opaque materials that form a barrier against the aggressive effects of UV rays, and in this specific use to protect against chlorine or salt water.

TECNOTOP can be applied with:

- airless spray gun
- short nap roller
- brush

When applied using an airless system, add max. 5% Desmosolvent to help it run more smoothly through the equipment.

These types of resins should be applied without any humidity or the presence of water on the substrate.

Likewise, re-application should be carried out once the first coat has dried and with a maximum use window of 24 horas at 23° C.







APPLICATION METHODOLOGY:

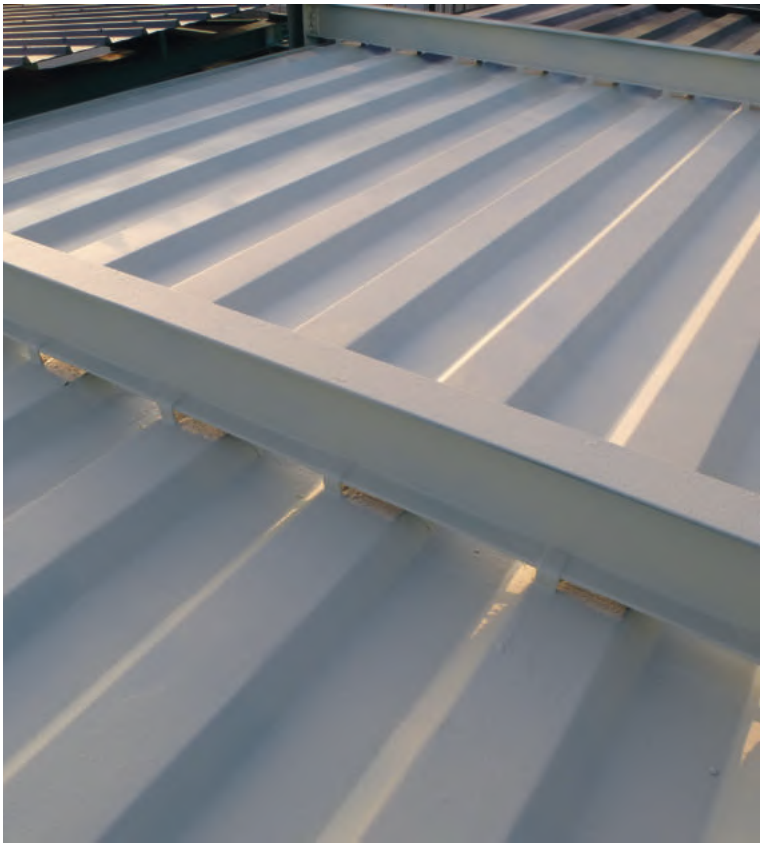
1. Check expiry time (existing on the pail label).
2. Open the pails and check visually the product.
3. Prior to mixing, stir component A separately to homogenize it (pigment is inside).
4. Mix the pigment beforehand with component A (if this one is neutral version).
5. Add the component B into the component A pail (make sure the component B is fully emptied into the component A).
6. Mix both components using a low speed electric mixer (300 to 400 r.p.m.).
7. Apply by short nap roller, brush. The number of coats depends on the physical surface conditions; in most of cases is necessary to apply 2 crossed coats. Wait for the tack free time between coats. You can use airless equipment too, but the pot- life time must be checked to clean the equipment within the indicated time.

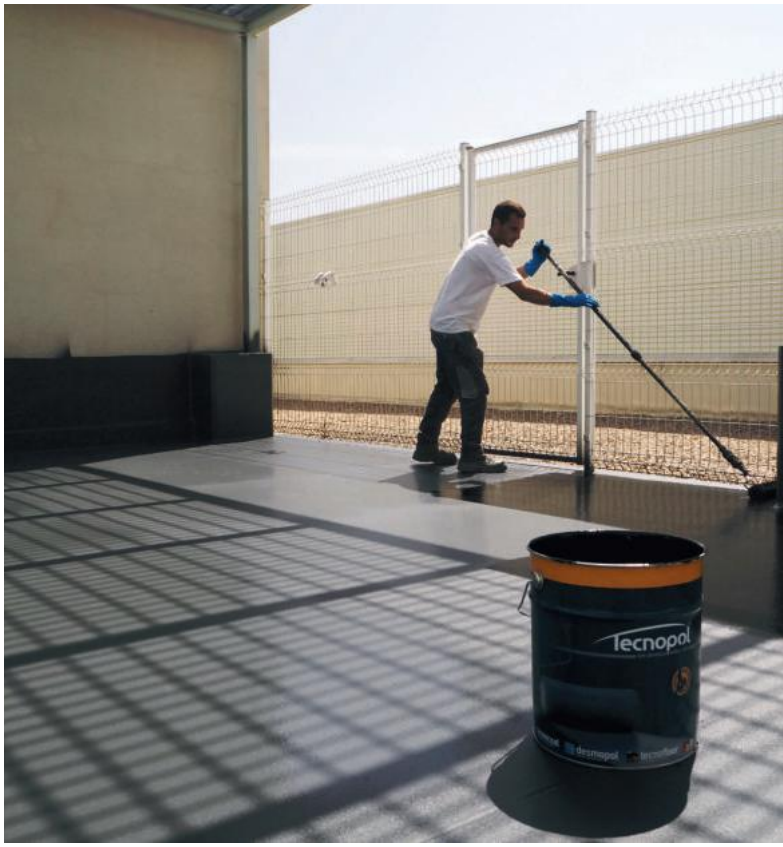
	tecnotop 1C	tecnotop 2C
Components No.	1	2
Density	±1.20 g/cm^3	±1.20 g/cm^3
Solids content	± 63%	± 71%
Pot Life	-	± 1 hour
Dry Time	± 8 minutes	±2 hours
Recoat time	8 min ~ 48 hours	4 ~ 48 hours
Walkable / Passable	± 12 hours	±12 hours
Adhesion concrete	>1.5 MPa	>1.5 MPa
Yield	see next tables	see next tables
Temperature of application	5 °C ~ 35 °C	5 °C ~ 35 °C

The consumption of **TECNOTOP** can vary according to the final use or warranty given by the applicator.

There are two possibilities to have an anti-skid surface:

- Mixing **TECNOPLASTIC** range of particles on the Tecnotop resin.
- Spreading **SILICA SAND** on top to **TECNOTOP**.





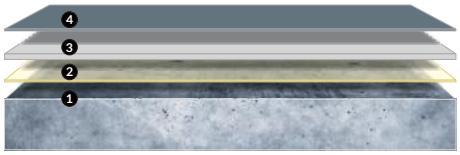
Application summary (asphalt / concrete / ceramic tiles roof)

These previous procedures are common to all systems below, each system specifies the finishing procedure.

	PRODUCT	TYPE OF SURFACE	EXISTING SURFACE HUMIDITY	APPLICATION METHOD	YIELD	THICKNESS
1	**Surface preparation**					
2*	**PRIMER EPw-1070**	Asphalt	± 4%	• Apply by roller or electrical equipment.	100 ~ 200 g/sqm	55 µ ~ 110 µ
	PRIMER EP-1040	Ceramic / Metal	± 10 %	• Apply by roller or electrical equipment.	150 ~ 300 g/sqm	135 ~170 µ
	PRIMER EP-1020	Concrete / Ceramic tiles	± 4%	• Apply by roller.	± 200 g/sqm	190 µ
	PRIMER EP-1010	Concrete / Ceramic	± 4%	• One coat application by squeegee.	300 g/sqm	200 µ
	PRIMER PU-1050	Concrete	± 4%	• Apply by roller.	150 ~ 300 g/sqm	135 ~170 µ
	PRIMER PUc-1050	Concrete cold weather	± 4%	• Apply by roller.	150 ~ 300 g/sqm	135 ~170 µ
	PRIMER WET	Concrete / Ceramic	± 98%	• One coat application by trowel.	450 ~ 500 g/sqm	290 ~325 µ
3	**TECNOCOAT P-2049**	Concrete / Asphalt / Ceramic	-	• Apply using TC-2049 spray equipment.	2,1 kg/sqm	2 mm
	TECNOCOAT P-2049 EL	Metal	-		1,6 kg/sqm	1,5 mm

*Choose primer according surface type and his humidity.

RF1 · STANDARD NON-WALKABLE FLAT ROOF



4	**TECNOTOP 1C**	-	• Apply 1 coat of TECNOTOP 1C by roller.	150 g/sqm	89 µ

RF2 · TRANSITABLE FLATBED CUBIERTA (using SILICA SAND)



4	**TECNOTOP 2C**	-	• Apply a first coat of TECNOTOP 2C by short nap roller or electrical equipment.	150 g/sqm	90 µ
	SILICA SAND	-	• Spread SILICA SAND on the wet surface. • Once dried, remove the non bonded SILICA SAND (granulometry 0.3 ~ 0.8mm).	± 1 kg/sqm	-
	TECNOTOP 2C	-	• Apply the second layer (sealing layer) of TECNOTOP 2C with a short nap roller or airless equipment.	180 g/sqm	110 µ

RF3 · STANDARD WALKABLE FLAT ROOF (using Tecnoplastic)



4	**TECNOTOP 2C + TECNOPLASTIC C / F**	-	• Apply a first coat of TECNOTOP 2C mixed with TECNOPLASTIC C or F (7~8%) by short nap roller.	150 g/sqm	90 µ
	TECNOTOP 2C	-	• Apply the second layer (sealing layer) of TECNOTOP 2C with a short nap roller or airless equipment.	180 g/sqm	110 µ

RF4 · CERAMIC FINISH

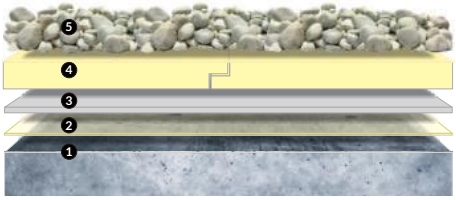


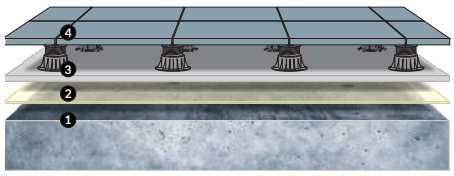
4	**PRIMER PU-1000**	±4%	• Apply by roller.	± 80 g/sqm	60 µ
	SILICA SAND	-	• Spread SILICA SAND on the wet surface. • Once dried, remove the non bonded SILICA SAND (granulometry 0.3 ~ 0.8mm).	± 1 kg/sqm	-
5	**CERAMIC TILES**	-	• Apply the ceramic floor using a specific adhesive/mortar.	-	-

RF5 · OTHER FINISHES

TECNOCOAT P-2049 accept other kind of finishes: gravels (IRMA system), elevated technical floor, pavements, etc.

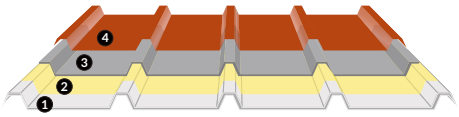
For more information ask to our technical department.





Application summary (metal roof)

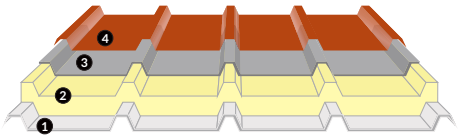
These previous procedures are common to all systems below, each system specifies the finishing procedure.



RFM1 · STANDARD METAL ROOF

	PRODUCT	EXISTING SURFACE HUMIDITY	APPLICATION METHOD	YIELD	THICKNESS (DFT)
1	**Surface preparation**				
2*	**PRIMER EP-1040**	± 4%	• Apply by roller or electrical equipment.	100 ~ 150 g/ sqm	95 ~140 µ
	PRIMER EPw-1070	± 10 %	• Apply by roller.	100 ~ 200 g/ sqm	55 µ ~ 110 µ
3	**TECNOCOAT P-2049 EL**	-	• Apply using TC-2049 spray equipment.	1,6 kg/sqm	1,5 mm
4	**TECNOTOP 1C**	-	• Apply 1 or 2 coats using a short nap roller or airless equipment.	150 g/ sqm	85 µ
	TECNOTOP 2C	-		180 g/ sqm	100 µ

*Choose primer according surface type and humidity.



RFM2 · INSULATED METAL ROOF

	PRODUCT	EXISTING SURFACE HUMIDITY	APPLICATION METHOD	YIELD	THICKNESS (DFT)
1	**Surface preparation**				
2	**TECNOFOAM G-2060 HFO**	-	• Apply using TC-2049 spray equipment.	2 ~ 3,25 kg/sqm	3 ~ 5 cm
3	**TECNOCOAT P-2049**	-	• Apply using TC-2049 spray equipment	2,1 kg/sqm	2 mm
4	**TECNOTOP 1C**	-	• Apply 1 or 2 coats using a short nap roller or airless equipment.	150 g/sqm	85 µ
	TECNOTOP 2C	-		180 g/sqm	100 µ





Approved by official certification agencies

- **EOTA CERTIFICATES**
  European TECHNICAL ASSESSMENT (ETA 11/0357)
  TECNOCOAT P-2049 holds an ETA certificate (W3 25 working life years). This approval is based on a European technical approval guideline (EAD 030350-00-0402) which approves the suitability of the product for its specified use, based on compliance with the essential requirements as "Liquid Applied Roof Waterproofing Kit, based on pure Polyurea". Including plant roots penetration according to EN-13948 for use in green-roofs.

  European TECHNICAL ASSESSMENT (ETA 21/0942)
  This approval is based on a European technical approval guideline EAD 030675-00-0107 which approves the suitability of the product how "Liquid Applied Bridge Deck Waterproofing Kits" (under asphalt).

- **DTA "Avis Technique" for roofing**
  DTA 5.2/19.2665
  TECNOCOAT P-2049 holds the AVIS TECHNIQUE, technical certification for in situ resin-based liquid waterproofing system for inaccessible roofs, technical roofs and roofs accessible to pedestrians.

- **BBA CERTIFICATE**
  UK TECHNICAL ASSESSMENT (BBA 16/5340)
  TECNOCOAT P-2049 holds a BBA certificate for the British market (w3 25 working life years) and regulates aspects as weather resistance, reaction to fire, adherence to substrates, pedestrian and road traffic resistance to plant roots penetration and working life for over 25 years.

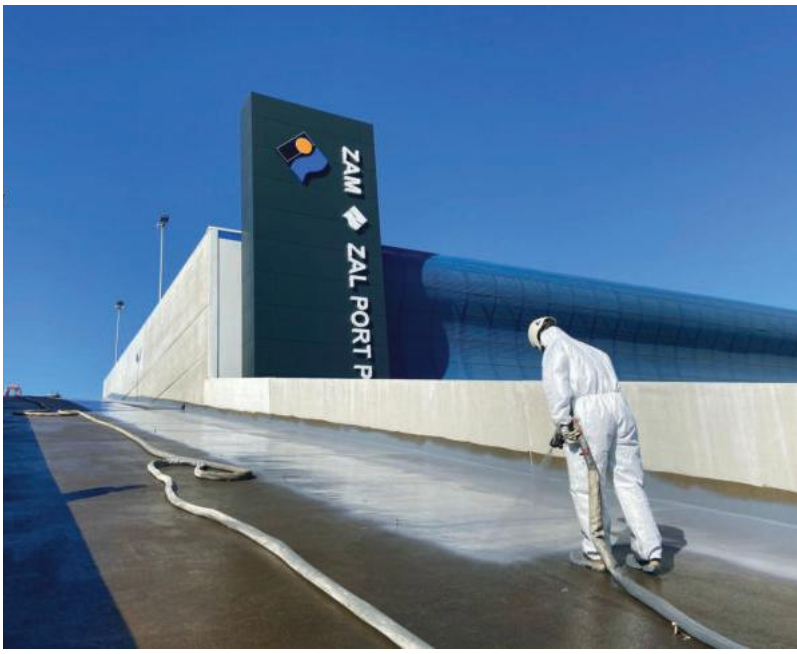
- **NSF INTERNATIONAL LABORATORIES APPROVAL and WRAS APPROVAL**
  APPROVED FOR CONTACT WITH WATER INTENDED FOR HUMAN CONSUMPTION (BS6920) and WRAS
  TECNOCOAT P-2049 passed all the tests conducted by the NSF laboratories and is now officially classified as safe and suitable for use in contact with water destined for human consumption, and holds the WRAS APPROVAL (Water Regulations Advisory Scheme) nº 1708543.

- **ASTM APPROVALS**
  Tested under various ASTM standards according to US regulations.

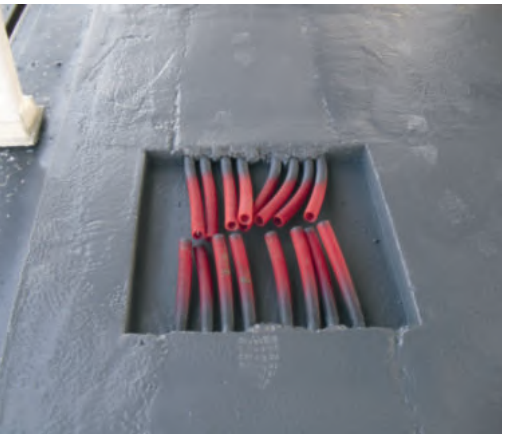
- **CE MARKING UNDER EN 1504-2 APPROVAL**
  PROTECTION AND REPAIR OF CONCRETE STRUCTURES
  TECNOCOAT P-2049 holds an EN 1504-2 certificate, the official European approval for products and systems designed for the protection and repair of concrete structures.

- **CONTACT WITH FOOD PRODUCTS CERTIFICATE**
  NO MIGRATION IN CONTACT WITH ETHANOL (UE REGULATION No. 10/2011 based on EN 1186.1:2002 and EN 1186.3:2002)
  The **TECNOCOAT P-2049** membrane holds a certificate issued by Applus declaring that migration in contact with ethanol is lower than the global limit permitted.




ZAM
ZAL PORT









Legal Notes

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