



**TECNOCOAT P-2049 FR - LIQUID POLYUREA
MEMBRANE 100% PURE FOR WATERPROOFING
AND COATING WITH A FLAME RESISTANT
BEHAVIOR**

TECNOCOAT P-2049 FR system was developed as a single coating suitable for waterproofing, protection and sealing in general. TECNOCOAT P-2049 FR 100% pure polyurea membrane is made up of two high reactive liquid components, isocyanates and amines, which are mixed together using spray equipment (TC2049-spray-equipment.tecnopolgroup.com). TECNOCOAT P-2049 FR is an aromatic high density pure polyurea developed for applications requiring a **flame resistant behavior**.



USES

For waterproofing and protection of: (flame resistant behavior)

- Sloped roofs, flat roof (walkables), balconies and overhangs.
- Floor surfaces and roofs in car parks (traffic deck) with vehicle traffic, non-slip finish (according EN 12633:2003)
- Industrial floor surfaces with waterproofing and hard-wearing requirements
- Retaining walls and foundations
- Green roofs and walls
- Power plants, recycling, water waste and water treatment and storage plants and petrochemical plants
- Asbestos roofs.

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

recommended thickness	± 2 mm
tack free time at 23°C	± 5 seconds
tensile strength at 23°C	>15 MPa
elongation at 23°C	>200%
shore A hardness at 23°C	>90
application method	spray equipment
VOC(volatile organic compounds)	0 (100% solids)



COLORS



GENERAL FEATURES

- TECNOCOAT P-2049 FR is a very strong solid membrane, elongation and hard-wearing product that, once applied, offers great stability, durability, and a perfect waterproofing and seal
- Resistant flame behavior: it resists ignition, will self-extinguish if ignited, and is low smoke emission
- the application and training is done by our spray equipment TC2049 (spray-equipment.tecnopolgroup.com) or similar
- it is free from harmful to the ozone layer, so do not promote the greenhouse effect (NOT contain HFCs, HCFCs, VOCs, etc ...).
- TECNOCOAT P-2049 FR system is 100% recyclable by mechanical means friendly to the environment
- no gas collection for recycling and / or destruction is required
- it does not emit any substance to the environment once installed.
- Thanks to its versatility and its drying time around 5 seconds TECNOCOAT P-2049 FR adapts to any surface, making it the ideal product for application on uneven surfaces and in areas of any shape, whether curved or squared.
- The TECNOCOAT P-2049 FR system's properties enable it to bond to any surface, such as concrete, ceramic tiles, wood, bituminous sheets, acrylic paints...
- Furthermore, due to its resistance it can be walked on and it will accept a rough finish to make it non-slip (according ENV 12633:2003)
- Applying TECNOCOAT P-2049 FR 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.
- This pure polyurea membrane system 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, consult the technical specifications of our primers where the maximum humidity ranges are specified, or our technical handbook of application of TECNOCOAT
- The TECNOCOAT P-2049 FR system requires solar radiation protection (UV rays) to ensure it does not lose its physical and mechanical properties, given that it is an aromatic membrane. So, it incorporates a protective polyurethane colored aliphatic resin, TECNOTOP 2C, for use in the absence of other physical protection elements. You could apply too TECNOTOP S-3000, our polyaspartic resin.
- The fast reaction of TECNOCOAT P-2049 FR upon application provides great stability in a few seconds and it may be walked on and guarantees waterproofing in less than 3 hours. This polyurea reaches its optimum conditions after approximately 24 hours.

PACKAGING

Metal drums of 225 kg each component (amines and isocyanates)

SHELF LIFE



12 months at temperatures between 5° C and 25° C, provided it is stored in a dry place. Once the tin has been opened, the product must be used immediately. Once opening drum, slightly mix mechanically component B (amines), for good mixing of their components.

APPLICATION METHOD

In general, you should take the following factors:

- repair the surface (fill in depressions, eliminate unevenness, eliminate any old waterproofing, etc.)
- singular points preparation(perimeter, sinks / evacuations, expansion joints or structural)
- clean up the surface or substrate, removing any dust, dirt, grease or efflorescence.
- the surface has to be enough compressive strength of adhesion of the membrane. If it were not so, we will proceed to apply our primers resins to achieve this target
- the pull off strength of the membrane is around and more then 2 N/mm²(MPa)
- in case of dubt of all above, apply before in a restricted area and to check

The TECNOCOAT P-2049 FR pure poliurea system can be applied to many different surfaces and the procedure will vary depending on its nature or state. Below we set out some of the application for the most common surfaces; for other surfaces not described, please contact our technical department.

Concrete substrate

- any depressions or voids should be repaired using a mix (ratio of ±1:4) of our epoxy resin PRIMER EP-1020 mixed with silica sand.
- the 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 laitance or release agents should be eliminated and an open pore surface achieved by grit blasting, milling or sanding.(to achieve a Concrete Surface Preparation index -CSP- 3 to 6, depending of the final use)
- clean up and eliminate all contaminants from the elements, such as dust or particles from the previous processes.
- apply the primer in the conditions and with the parameters indicated in the technical specifications for these products. In general, the dual component polyurethane PRIMER PU-1050 should be used.
- apply the TECNOCOAT P-2049 FR pure polyurea membrane
- application of the aliphatic polyurethane resin TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done by short hair roller type equipment "airless" (see the conditions of application in the product data sheet TDS)

Ceramic substrate

- ceramic surfaces should not have empty joints or loose elements or parts. These should be filled with MASTIC PU mastic, complemented with TECNOBAND 100 on the joints if necessary.
- for rapid and efficient cleaning of the surface use pressurized water and check that it evaporates completely. Also verify that all dust and other physical contaminants have been eliminated.
- next apply the required primer; in these cases of non-porous surfaces use the water-based epoxy PRIMER EPw-1070.
- apply the TECNOCOAT P-2049 FR pure polyurea membrane.
- application of the aliphatic resin TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done by short hair roller type equipment "airless" (see the conditions of application in the product data sheet TDS)

Sheets substrate:

The existing sheet surfaces (bitumen, EPDM, PVC ...) must not show surface areas raised or not in good condition. He withdrew in poor areas.

- there shall be cleaned with water, ensuring complete evaporation.



- next apply the required primer; in these cases of non-porous surfaces use the water-based epoxy PRIMER EPw-1070.
- apply the TECNOCOAT P-2049 FR pure polyurea membrane.
- application of the aliphatic polyurethane resin TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done by short hair roller type equipment "airless" (see the conditions of application in the product data sheet TDS)

Notes:

- Consult in all cases the waiting times, drying time, singular points treatment, conditions of application of all the products through the technical data sheets of each product, the technical handbook of application of TECNOCOAT , 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, 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 thin layer (± 80 g/m²) of polyurethane resin PRIMER PU-1000
- light spread SILICA SAND over the wet primer applied before
- wait for the total drying
- apply TECNOCOAT P-2049 FR, TECNOCOAT CP-2049 or DESMOPOL
- apply TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done by short hair roller type equipment "airless" (see the conditions of application in the product data sheet TDS)

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 thin layer (± 80 g/m²) of polyurethane resin PRIMER PU-1000.
- light spread SILICA SAND over the wet primer applied before
- wait for the total drying
- apply TECNOCOAT P-2049 FR, TECNOCOAT CP-2049 or DESMOPOL
- apply TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays. This application can be done by short hair roller type equipment "airless" (see the conditions of application in the product data sheet TDS)



APPLICATION REQUIREMENTS (SPRAY EQUIPMENT)

For the formation, it is necessary to mix the two initial liquid components, isocyanates and amines 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:

- Heater isocyanate temperature: ± 75 °C
- Heater amines temperature: ± 70 °C
- Hose temperature: ± 70 °C
- Pressure: 2.900 psi (200 bar)
- Recommended Mixing chamber: GU-07008-1 or GU-07008-2

These temperature and pressure parameters have to be valued, ratified or be varied by the applicator, depending on the conditions of each climate zone, weather situation or as projection equipment specifications.

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 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 (MSDS) of the product.

COMPLEMENTARY PRODUCTS

The TECNOCOAT P-2049 FR 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 in a ratio of $\pm 1:4$, or calcium carbonate in ratio $\pm 1:2$, this is used to fill in depressions in concrete surfaces, rapidly providing a firm and fast drying even base.
- PRIMER PU-1050/PRIMER EPw-1070/PRIMER PUc-1050/PRIMER PU-1000: these several resins 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 specifications). Consumption may vary depending on the type of support, nature or surface texture. Consult the technical specifications of each product or our technical department.
- TECNOCOAT CP-2049: pure cold polyurea for manual application, self-leveling for small applications on TECNOCOAT P-2049, repairs or application in areas of difficult access
- TECNOTOP 2C: dual-component colored aliphatic polyurethane resin, used to protect roofs and floors or ground against UV rays when there is no other protection.(according ETA 10/0121 and BBA 16/5340)
- 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 settomg up.
- TECNOPLASTIC F/C: 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).
- TECNOBAND 100: cold bond deformable band made up of an upper layer of non-woven textile and 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.



- MASTIC PU: polyurethane mastic for filling joints (use together with TECNOBAND 100 when necessary).

SYSTEM TECHNICAL DATA

PROPERTIES	RESULTS
Density at 23 °C ISO 1675	1.100 kg/m ³
Elongation at break at 23 °C ISO 527-3	>200%
Tensile Strength at 23 °C ISO 527-3	>15
Hardness (Shore A) at 23°C DIN 53.505	>90
Hardness (Shore D) at 23°C DIN 53.505	>50
Surface temperatures	-20 °C~90 °C
Resistance to water vapor diffusion EN 1931	$\mu=2.279$
Water vapor diffusion ISO 7783	14g/(m ² /day)
Roof slope	zero slope
Tack free time at 23 °C	±5 seconds
Cured time at 23 °C	10 seconds~48 hours
VOC	0 (solids content 100%)

These values in this table are approximate, and can vary depending on the situation of the carrier or application methodology employed

