



## TECNOCOAT P-2049 HR - HIGH STRENGTH POLYUREA MEMBRANE 100% PURE FOR WATERPROOFING AND COATING

The 100% pure polyurea TECNOCOAT P-2049 HR system was developed as a coating suitable for waterproofing, protection and sealing in general, **especially in applications where extreme resistance is required**. The pure polyurea TECNOCOAT P-2049 HR membrane is made up of two liquid components, isocyanates and amines, which are mixed together using a spray equipment (TC2049 <http://spray-equipment.tecnopolgroup.com/>), to form an aromatic, continuous, without joints, high density, solid pure polyurea, with high mechanical and excellent chemical resistance qualities.

## USES

For waterproofing and protection of:

- Vehicle linings and off shore coatings
- Tanks and irrigation canals
- Retaining walls and foundations
- Power, recycling, waste and water treatment and storage plants, and petrochemical plants

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

recommended thickness	±2 mm
tack free time at 23°C	±18 second
application method	spray equipment
hardness Shore A at 23°C	>97
elongation at break at 23°C	>171%
resistance to traction at 23°C	± 23 MPa
VOC(volatil organic compounds)	0 (100% solids)



## COLORS



## GENERAL FEATURES:

- TECNOCOAT P-2049 HR is a sturdy and hard-wearing product that, once applied, offers great stability and durability.
- the application and training is done by our spray equipment TC2049 ([spray-equipment.tecnopolgroup.com](http://spray-equipment.tecnopolgroup.com)) or similar
- thanks to its versatility and its drying time of between 13 and 18 seconds TECNOCOAT P-2049 HR adapts to any surface, making it the ideal product for application on uneven surfaces and in areas of any shape, whether curved or squared.
- 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 HR 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.
- applying TECNOCOAT P-2049 HR 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.
- TECNOCOAT P-2049 HR 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
- TECNOCOAT P-2049 HR system requires solar radiation protection (UV rays) to ensure it does not lose its properties because it is an aromatic membrane.
- TECNOCOAT P-2049 HR is immune to temperature changes of between -40° and +160°, conserving its elastic properties without becoming cracked or soft.
- the fast reaction of TECNOCOAT P-2049 HR 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, the following aspects should be dealt with prior to spraying:

- Repair the surface (fill in depressions, eliminate unevenness, eliminate any old waterproofing, etc.).
- Clean the surface or substrate, removing any dust, dirt, grease or efflorescence.

The TECNOCOAT P-2049 HR pure polyurea 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  $\pm 1:4$ ) 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 on the final use)
- Next, clean 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.



- 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)

**Metal substrate:**

- Metal surfaces should be prepared using sand-blasting, in order to improve the surface's mechanical fixation properties.(in situations as metal tanks or similar, must achieve a SP10 according SSPC norms/NACE 2/2nd quality according UK norm/DS 2.5 french norm/SA 2 1/5 sweden norm)
- Check the seals and overlaps and where necessary seal with MASTIC PU mastic or TECNOBAND 100, in combination.
- For rapid and efficient cleaning of the surface use a ketene based solvent
- Apply prior priming using a 100% solids epoxy resin PRIMER EP-1040 or water-based epoxy resin PRIMER EPw-1070, to improve surface leveling and bonding. Consult the technical specifications of this product.
- Apply the TECNOCOAT P-2049 HR 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 ( $\pm 80$  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 TECNOCOAT P-2049 HR, 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 ( $\pm 80$  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 TECNOCOAT P-2049 HR, 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, or TECNOTOP S-3000, polyurea resin.

## APPLICATION REQUIREMENTS (SPRAY EQUIPMENT)

For the formation, it is necessary to mix the two initial liquid components, isocyanates and amines by our our spray equipment TC2049 ([spray-equipment.tecnopolgroup.com](http://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:  $\pm 75$  °C
- Heater amines temperature:  $\pm 70$  °C
- Hose temperature:  $\pm 70$  °C
- Pressure: 2.900 psi (200 bar)
- Recomendated 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 HR 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 1:4, 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 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 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.
- PRIMER EP-1040: 100% solid content, epoxy resin, for metal surfaces
- 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 2CP: dual-component colored aliphatic polyurethane resin used to protect against UV rays and chlorinated water when waterproofing swimming pool, lakes and aquariums.
- 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.
- 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).



## TECHNICAL DATA

PROPERTIES	RESULTS
Density at 23 °C ISO 1675	1.100 kg/m <sup>3</sup>
Elongation at break at 23 °C ISO 527-3	>171%
Tensile Strength at 23 °C ISO 527-3	>23 MPa
Hardness(Shore A) at 23°C DIN 53.505	>97
Hardness(Shore D) at 23°C DIN 53.505	>60
Climatic zone	S (hard weather)
Surface temperatures	-20 °C~90 °C
Roof slope	S1~S4 (?0°),zero slope
Fire reaction	Euroclass F
Tack freeat 23 °C	±18 seconds
Cured time at 23 °C	±12 hours
Solids content ISO 1768	100% ( VOC's=0)
Chemical resistances	Resistant to many products and chemicals (consult technical department)
Thermal resistance	Itbehaves consistently with temperature range of: -40 °C~+160 °C

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

