



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

TECNOCOAT P-2049 HR is a two-component, sprayable, aromatic coating suitable for waterproofing, protection, and sealing. It's made up of two high reactive liquid components, isocyanates and amines, mixed using our specific spray equipment (TC2049 <http://spray-equipment.tecnopolgroup.com/>) or similar, to form a solid, continuous, watertight and waterproof, seamless, high-density pure polyurea membrane, with high mechanical qualities **especially in applications where chemical and mechanical resistance are required.**

USES

For waterproofing and protection of:

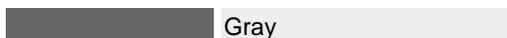
- Vehicle linings and offshore coatings
- Tanks and irrigation canals
- Concrete decks, retaining walls, and foundations
- Power, recycling, waste and water treatment and storage plants, and petrochemical plants

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

recommended minimum thickness	±1,5 mm (depending on the chemical contact)
tack-free time	±18 secs
tensile strength	±23 MPa
elongation at break	>171 %
hardness Shore A	>97
application method	spray equipment
VOC(volatile organic compounds)	0



COLORS



GENERAL FEATURES:

- TECNOCOAT P-2049 HR is a sturdy hard-wearing product that once applied, offers waterproofing, great stability, and durability.
- the application and training are done by our spray equipment TC2049 (spray-equipment.tecnopolgroup.com) or similar
- thanks to its versatility and its drying time around of 5 seconds TECNOCOAT P-2049 EL 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 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.
- recommended consumption is approximately 1,7 kg/sqm (at 1,5 mm dry film thickness). This data could vary depending on the type of application, weather conditions, or substrates' nature.
- 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, consult the technical specifications of our primers in the TDS.
- the system's properties enable it to bond to any surface, such as cement, concrete, polyurethane, wood, metal, etc. Furthermore, due to its resistance, it can be walked on and it will accept a rough finish to make it non-slip (according to ENV 12633:2003)
- his properties allow it to adhere to any surface such as concrete, ceramic tiles, metals, plywood, asphalts. 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. Ponding water admitted.
- 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.
- the system requires solar radiation protection (UV rays) to do not lose its physical and mechanical properties, given that it is an aromatic membrane. The system incorporates a protective polyurethane-colored aliphatic resin, TECNOTOP 2C, for use in the absence of other physical protection elements. You can apply too TECNOTOP S-3000, TECNOTOP 2CP or TECNOTOP 1C.

PACKAGING:

Metal drums of 225 kg each component (B side: amines and A side: isocyanates).

SHELF LIFE

12 months at temperatures between 5°C to 35°C, 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. Once opening drum, B side must be agitated mechanically before inserting the transfer pumps and use.

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 applications 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 open the 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 datasheet 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 an SP10 according to SSPC norms/NACE 2/2nd quality according to UK norm/DS 2.5 french norm/SA 2 1/5 Sweden norms)
- 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 using a ketone-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 datasheet TDS)

Notes:

- Consult in all cases the waiting times, drying time, singular points treatment, conditions of applying all the products through the technical data sheets of each product, the technical guidelines, or consulting 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.

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 TECNOCOAT P-2049 HR,
- apply TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays.

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 TECNOCOAT P-2049 HR
- apply TECNOTOP S-3000/2C/2CP, in consumption and desired thicknesses in the case of no protection against UV rays

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: 70-75 °C
- Heater amines temperature: 70-75 °C
- Hose temperature: $\pm 70^{\circ}\text{C}$
- Working pressure: 2.500 - 3.000 psi
- Recommended mixing chamber: GU-07008-1 or GU-07008-2 (*use mechanical purge chamber*)

Anyway, these parameters for adjusting the projection equipment are approximate and may change depending on the weather conditions of the environment at the moment to apply, therefore, it is the responsibility of the applicator values in each case the option to choose.

HANDLING 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.

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-1010: 100% solids, two-component, fillerized epoxy resin, to fill in depressions in concrete surfaces, one coat application so, rapidly providing a firm and fast drying even base.
- PRIMER EP-1020: 100% solids, two-component, epoxy resin, improving the adhesion, in one coat application so, rapidly providing a firm and fast drying even base.
- PRIMER PU-1050/PUC-1050: these several resins are applied on the substrate beforehand to improve bonding and level the surface and regulate the humidity in the substrate (see permitted levels in their technical specifications).
- PRIMER EP-1040: epoxy resin for its previous application on metallic or ceramic supports, improving adhesion, absorbing resident moisture in the support, and regularizing the planimetry of the support.
- PRIMER EPw-1070: epoxy water-based resin for the application on concrete, asphalt sheets, metal, or ceramic, improving adhesion, absorbing resident moisture in the support.
PRIMER WET: epoxy resin for the application on concrete or ceramic substrates, improving adhesion, absorbing resident moisture in the substrate.
- TECNOTOP 2C: dual-component colored aliphatic polyurethane resin, used to protect walkable and vehicular roofs and floors or ground against UV rays when there is no other protection.
- TECNOTOP 2CP: dual-component colored aliphatic polyurethane resin used to protect against UV rays and chlorinated water when waterproofing swimming pools, lakes, and aquariums.
- TECNOTOP 1C: single component colored aliphatic, used to protect non-walkable roofs or only for maintenance, against UV rays when there is no other protection
- TECNOTOP S-3000: (polyaspartic resin) two-component, aliphatic, colored, cold polyurea coating 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/S-3000/1C, 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: the cold bond deformable band is 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.
- 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	1,12±0,03 g/cm ³	1,09 ±0,03 g/cm ³
Viscosity (at 12 rpm) ISO 2555	1.200±50 cps	1.000±150 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 Tecnopol (Certificate of Analysis for each batch delivered). Results were performed in the laboratory at 23°C and 50% RH, under controllable conditions.

MEMBRANE PROPERTIES

PROPERTIES	RESULTS
Density ISO 1675	1,10 ±0,03 g/cm ³
Viscosity UNE-EN ISO 2555	±900 cps ±650 cps
Tack-free time	±18 secs
Cured time	±12 hours
Elongation at break ISO 527-3	>171%
Tensile Strength ISO 527-3	>23 MPa
Hardness Shore A/D DIN 53.505	>97 / >60
Climatic zone	S (hard weather)
Environmental and support application temperature range	3°C ~ 40°C
Max. relative humidity	85%
Walkable / Vehicular	±3 hours / ±12 hours
Constructive element slope	zero slope, ponding water admitted
Fire reaction	NPD
Solids content ISO 1768	100%
VOC (volatile organic compounds)	0
Chemical resistances	Resistant to many products and chemicals (consult technical department)
Thermal resistance	It behaves consistently with a temperature range of -40 °C~+160 °C

Results were performed in the laboratory at 23°C and 50% RH, under controllable conditions. These values may vary depending on the application, climatology, or substrate conditions.

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