
HydroPad®

Technical specifications



High-performance breathable waterproof gel based on an advanced tri-polymeric matrix and active quartz microspheres with 4-Way Flex® flexibility, variable superfluid and thixotropic rheology, with very low cement content, for the waterproofing of substrates before the laying of tiles and natural stones with Litokol adhesive gels.

Product description

High-performance breathable waterproof gel based on an advanced tri-polymeric matrix and active quartz microspheres with 4-Way Flex® flexibility, variable superfluid and thixotropic rheology, with very low cement content, for the waterproofing of substrates before the laying of tiles and natural stones with Litokol adhesive gels.

It is easily applied with a smooth steel trowel, roller or brush even on large surfaces and, in combination with the accessories from the HydroBand Anti-Fracture line, it creates a continuous water barrier for swimming pools, exteriors and humid environments.

It can also be applied in overlay on non-absorbent materials, such as existing old tiles, and requires reduced waiting times for the application of the second coat and for the laying of the cladding.

Classified CM 02 P - EN 14891

Proprietary Gel formula

Waterproof gel integrated with flexible cross-linked polymers
Proprietary polymer blend with extended longevity in continuous immersion
Very low content of Portland cement (< 20%)
Hybrid engineered hydraulic binders
Enhanced with polymerized quartz microspheres insensitive to hydraulic degradation
Latest generation hydrocellulose
High content of mineral aggregates

HydroPad® embodies the ongoing scientific progress of Litokol. It is designed with innovative raw materials to enhance the installation experience, safety, and reduce environmental impact.

Powered by 4-Way Flex® technology

4-direction multi-dimensional flexibility

The unique feature of the proprietary 4-Way Flex® technology is its ability to deform along all movement directions: longitudinal, transverse, vertical, and torsional, preventing micro-cracking and delamination even in the presence of unstable supports.

This multidirectional flexibility allows the Gel to adapt to complex structural movements, such as thermal expansions, vibrations, micro-settlements, and mechanical stresses without compromising its integrity and functionality.

Performance Gel Variable Rheology Membrane

Programmable Waterproof Membrane

HydroPad® is a tri-polymeric mineral waterproofing gel with variable rheological behavior, designed to be adjusted by the applicator directly on site through the modulated addition of water, without compromising the integrity of the hydraulic barrier.

HydroPad® is evenly applied quickly and easily with a trowel, roller, or brush, on large horizontal and vertical surfaces, both absorbent and non-absorbent, without sacrificing extraordinary smoothness even under extreme conditions of direct radiation and hot, windy climates.

Intelligent fillers with structural memory allow for product overlays without compromising the continuity of the achieved thickness.

Thanks to advanced rheological technology, the operational range is very wide and the applicator can increase the mixing water to make the Gel superfluid: the self-leveling consistency of HydroPad® is ideal for floor applications, perfect for large surfaces and very hot climates.

The applicator can reduce the water to achieve a thixotropic and stable mixture in vertical, without drips, perfect for walls, corners and precision details.

Customize the mix based on climate, surfaces, and experience.

In all cases, the waterproof and breathable behavior remains unchanged thanks to the self-regulating structure of the HydroPad® system.

The exclusive RVP - Programmable Variable Rheology of HydroPad® is a compensation mechanism that exploits the adaptive structure of the mineral matrix, which reorganizes itself based on dilution while maintaining:

- the internal cohesion of the membrane
- the liquid water barrier
- the selective breathability with vapor passage.

The result is that even by varying the water/product ratio, the Waterproof Gel does not crack, does not delaminate, and maintains its certified waterproofness.

Performance Gel Active Breathable Waterproofing

The new frontier of mineral waterproofing

In the field of under-tile waterproofing, the most advanced challenge is to combine waterproofing and breathability in a single material, especially on surfaces subject to residual moisture, thermal cycles, and mechanical stresses. Drawing inspiration from the physical-structural principles of intelligent textile membranes, such as Gore-Tex[®], it is now possible to transfer these concepts to the construction industry through a tri-polymeric mineral matrix with micro-selective architecture designed to function as an active breathable barrier.

Operating Principle

Internal structure with communicating closed pores. During the polymerization process, HydroGel[®] generates a three-dimensional micro granular lattice mesh with micrometric porosity.

The capillary channels formed are sub-micrometric with diameters ranging from 0.05 to 1 μm and do not allow the passage of liquid water (100 μm - high surface tension) but allow the diffusion of water vapor (0.0004 μm) due to pressure difference.

Active transpiration, intelligent sealing. In the presence of liquid water (osmotic pressure, rain, stagnation) the matrix automatically seals itself by exploiting the surface tension of the water (72 mN/m) which does not penetrate the pores.

The water vapor generated by damp substrates is a gaseous phase composed of isolated molecules (0.0004 μm) that finds a selective escape route. These molecules do not undergo surface tension and can freely diffuse outward through the micropores, exploiting a partial pressure gradient between the interior (humid) and the exterior (dry), avoiding overpressures and osmotic phenomena (blistering, delaminations). The membrane "actively breathes", adapting to the residual humidity of the substrate.

Performance Gel Multidirectional Flexible Interface

Adaptive Control Multidirectional Interface of Interfacial Transition Zones (ITZ)

The latest generation technology 4-Way Flex[®] is a system of flexibility and deformability with multidirectional distribution designed for:

- absorb structural movements along four simultaneous axes: longitudinal, transverse, vertical, and torsional
- ensure the functional continuity of the waterproof membrane
- protect the critical interface between membrane and substrate (ITZ) from localized stress, thermal shocks, vibrations or differential expansions.

The technical structure of the 4-Way Flex[®] technology is designed to prevent invisible fractures before they form.

The ITZ between membrane and substrate is the most fragile area: differences in elastic moduli, expansion coefficients and imperfect adhesions generate invisible micro fractures that lead to infiltrations, detachments triggered by thermal cycles and loss of filmic cohesion under deformation.

With the 4-Way Flex[®] the ITZ becomes an active zone where the HydroPad[®] polymeric lattice deforms together with the support in every direction, compensating for movement gradients.

The tension does not concentrate but distributes over a wide area, preventing localized breakages: the interface becomes flexible, adaptive, cohesive.

Chemistry + intelligent

Extremely low content of Portland cement <20%
Contains recycled mineral aggregates > 35%
Very low emissions of volatile organic compounds - VOC

Certifications

CM 02 P - EN 14891
EC1 Plus Gev Emicode
A+ Emissions dans l'air interieurs
EPD Environmental Product Declaration

HydroPad® and the Environment

LCA results for Global Warming Potential – Greenhouse Gas GWP-GHG								
Impact category	Unit	A1-A3	C1	C2	C3	C4	D	
Climate change GWP-GHG	kg CO2 eq	7.62 10 ⁻¹	4.38 10 ⁻³	1.08 10 ⁻²	0	5.34 10 ⁻³	-5.65 10 ⁻³	

Substrates

Screeds
Self-levellers
Levellers
Plasters and skimming coats
Existing tiles
Underfloor heating systems
Concrete and reinforced concrete
Gypsum
Gypsum and anhydrite
Fibre cement slabs
Lightweight panels
Existing cement-polymer waterproofing systems

Uses

Interiors - exteriors
Floors - walls
Overlaying
Swimming pools and fountains
Terraces and balconies
SPA and Hammam
Indoor wet areas, bathrooms and showers
Façades
Industrial floors
Residential, public, commercial and street furniture
Areas subject to high traffic and high stress

Limitations

Refer to national regulations, such as Standard UNI 11493

The ambient and surface temperature must be above +5°C during installation and for 72 hours after application

Apply the coating to the membrane within 72 hours in outdoor applications to avoid prolonged exposure to ultraviolet rays, alternatively cover with sunshade sheets; in applications exposed to traffic and abrasion, cover with suitable protection systems from direct abrasion until the coating is laid.

Do not apply on wet surfaces, damp substrates (> 5% R.H.) or those subject to rising damp.

Do not apply in thicknesses > 2 mm per coat

Do not apply in case of condensation on the surfaces

Do not apply on non-planar or excessively rough substrates. Plan for a skim coat with HydroLevel® 1-30.

Do not use in the presence of negative hydraulic pressures

Do not leave the product exposed if subject to direct abrasion and/or water containment. Always provide a coating of ceramic tiles, natural stones or mosaics.

Do not apply the product on bituminous membranes, rubber substrates or surfaces treated with resins

Do not apply in the absence of the HydroBand Anti-Fracture accessories where required.

Protect the waterproofing from driving rain for the first 4 hours after application.

Do not use the product for applications not indicated in this Technical Data Sheet

For further information, contact the Litokol Technical Help Service at +39-0522-622811 or via customercare@litokol.com

Product specifications

Composition	Single-component breathable tri-polymeric waterproof gel
Appearance	Superfluid and thixotropic gel
Colour	Grigio
Responsible packaging	15 kg recyclable bag
Shelf life	12 months in original packaging in a dry place.
Customs code	38245090

Technical specifications

Compliance	CM 02 P	EN 14891
Initial adhesion	≥ 0.5 N/mm ²	A.6.2
Adhesion after water immersion	≥ 0.5 N/mm ²	A.6.3
Adhesion after thermal ageing	≥ 0.5 N/mm ²	A.6.5
Adhesion after freeze/thaw cycles	≥ 0.5 N/mm ²	A.6.6
Adhesion after contact with limewater	≥ 0.5 N/mm ²	A.6.9
Adhesion after contact with chlorinated water	≥ 0.5 N/mm ²	A.6.7
Water impermeability in 1.5 bar positive pressure	No penetration and increase in weight < 20 g	A7
Crack-bridging capacity in normal conditions	≥ 0.75 mm	A.8.2
Crack-bridging capacity at very low temperature (-20°C)	≥ 0.75 mm	A.8.3

Specifications for application

Consistency of mix	Superfluid and thixotropic
Preparing the Gel mix	Water = 22-28% ~ 3.3-4.2 l/15 kg
Mix curing time	5 minutes
Duration of mixture	> 60 minutes
pH of mix	8 - 9
Specific gravity of mix	1.48 kg/dm ³
Total thickness (dry)	> 2 mm
Application	Smooth steel trowel, roller or brush
Application temperatures	From +5°C to +35°C
Waiting time between 1st and 2nd coat	4 h
Waiting time for installation of covering	12 h
Temperature of use	From -20°C to +90°C
How to clean equipment	With water when product is fresh. Mechanically when product has set.
Consumption	2.3 kg/m ² in two coats
Notes	Data detection at a temperature of +23°C, 50% R.H. and with no wind. May vary depending on the specific conditions of the installation site

Substrate preparation

In accordance with Standard UNI 11493-1, concrete, cement and gypsum-based substrates and coverings must be adequately cured and show no signs of excessive humidity, condensate, efflorescence or hydrostatic problems.

The substrates must be mechanically resistant and free of friable parts, and clear of grease, oils, paints, waxes and rising damp.

Cement plasters must have a curing time of at least one week per cm of thickness.

For surfaces frequently exposed to water, such as balconies, terraces, and shower floors, check that the slopes and drainage system sizing are adequate to allow for proper water runoff, considering the exposed surface area and maximum wetting conditions expected.

Generally, a slope of 1-1.5% is sufficient to guarantee the correct outflow of water. Cementitious substrates can be evened or sloped using the quick-setting, anti-shrink structural levelling compound, HydroLevel[®] 1-30.

In applications in sunny, warm and ventilated climates, moisten porous substrates and apply the product to surfaces that are not wet.

Cementitious screeds must have a total curing period of at least 28 days or be made with the innovative anti-fracture screeds, X-Floor[®] and X-Floor[®] Pro.

Create slopes on balconies or pavements with the levelling compound HydroLevel[®] 1-30.

Particularly dusty, porous and absorbent substrates can be treated with X-Prime[®], an innovative primer and consolidating product.

Smooth and compact substrates, such as old ceramic or marble tiles, must be treated with the specific detergent X-Cleaner[®] Scrub.

In anhydrite screeds, check for the presence of a suitable vapour barrier in order to prevent rising damp.

Use a carbide hygrometer to check that the residual humidity is less than 0.5% and 0.3% for heating screeds.

Any cracks or fissures must be sealed with CrackRepair.

In any case, the respective technical data sheets must be consulted for the

correct use of the indicated products.

Preparing the mixture

To fully appreciate the superior flowability and thixotropy of the innovative Gel superfluid and thixo mix, it is recommended to blend the product with the indicated mixing ratio.

Pour the right quantity of water into a container and slowly add the product, mixing with a mechanical mixer until a creamy, homogeneous, lump-free mixture is obtained.

Let the mixture rest for about 5 minutes, during which the polymeric Gel development is completed: the hydraulic binders, fillers and cellulose hydrate uniformly, air micro-bubbles incorporated during mixing are eliminated, and the polymers begin their activation process.

Briefly stir to obtain the superfluid Gel and easy-to-apply tixo consistency, both on floors and walls.

Application

To ensure total waterproofing, start the waterproofing cycle by gluing the special pieces of the HydroBand Anti-fracture line with HydroPad® at corners, edges, wall-floor and wall-wall joints, changes in slope and at the location of movement joints (fractionation-expansion-debonding).

The waterproofing of the movement joints must be carried out by inserting the HydroBand Anti-Fracture sealing tape, folded into an omega shape, inside the joint.

Subsequently, apply the first coat of HydroPad® evenly directly onto the substrate using a smooth steel trowel, long-haired acrylic roller, or brush for a consistent thickness of about 1 mm, taking care to cover the entire surface to be waterproofed, overlapping the previously glued accessories to ensure perfect continuity and seal of the membrane.

The drying time is approximately 4 hours, although it may vary depending on the site conditions such as temperature, environmental humidity, and ventilation.

On the first perfectly dry coat, evenly apply the second coat of HydroPad® for a consistent thickness of about 1 mm, taking care to cover all surfaces to be waterproofed.

The 4-dimensional flexible waterproof Gel adapts to the movements and deformations of the substrates without compromising the high adhesion and total water protection, and does not require the use of fiber reinforcement mesh.

The use of HydroMesh Anti-Fracture, embedded in the first fresh layer of HydroPad® and completely covered with the second layer of the product, has the sole purpose of ensuring total coverage of the surfaces to be waterproofed with a minimum required thickness of 2 mm.

To ensure a perfect connection with the waterproofing membrane in the presence of system passages such as pipes, drains, and lighting fixtures, use the special HydroCollar or HydroDrain sealing pieces that will be positioned and embedded in the first layer of HydroPad® and subsequently covered with the second layer.

As an alternative to using the special HydroCollar or HydroDrain sealing pieces, it is possible to connect the through-body of the systems and hardened HydroPad® with the specific sealant for underwater applications HydroPixel®.

The professional applicator will create a seat about 3-4 mm wide around the

through-body and after cleaning the surfaces will apply HydroPixel[®], creating a continuous bead of connection between the through-body and the HydroPad[®] surface, taking care to press vigorously and finish the surface by smoothing it to ensure complete filling and perfect adhesion. Consult the Technical Data Sheets of the products indicated before use.

Covering installation

Coverings can be installed after at least 12 hours have passed since the last coat in standard conditions.

The installation of ceramics, natural stones or mosaics will be carried out with the ultra-performing PowerGel[®] S1+ or PowerGel[®] S2+ Gels based on Litokol science, which guarantee the complete transfer of forces, the performance continuity of the system, and total safety.

To ensure perfect adhesion of the adhesive Gel to the HydroPad[®] waterproofing Gel, apply a zero coat of the mixture using the smooth side of the trowel and immediately afterwards apply the desired thickness with the notched side.

In accordance with Standard UNI 11493-1, use the back-buttering technique, applying the Gel also on the back of the tiles to ensure complete wetting during installation in environments where the substrate might be subject to movements or expansion, outdoors, in swimming pools or in particularly stressed areas.

In accordance with Standard UNI 11493-1, the tiles must be installed with joint widths suitable for their size (at least 2 mm).

For grouting in swimming pools, outdoors and in humid environments, it is recommended to use Starlike[®] Pro or Starlike[®] Easy.

Respect any potential fractionation or structural joints and create adequate expansion, fractionation and perimeter joints.

Warnings

Due to its high content of adhesive polymers, it is advisable to wash tools and any product residues from the surfaces with water before the Gel hardens. Once the reaction is complete and the Gel has hardened, it can only be removed mechanically.

Safety information

For the safe use of our products, refer to the latest version of the Safety Data Sheet, available on the website www.litokol.com
PRODUCT FOR PROFESSIONAL USE

Legal notes

The information and provisions contained in this Technical Data Sheet reflect our best experience.

Given the impossibility of directly intervening on the conditions of the work site and execution of the works, they represent indications of a general nature, which are in no way binding for our Company.

It is therefore recommended to perform a spot test in order to check the suitability of the product for the intended use. In any case, those who intend to use the product must establish whether or not it is suitable for the intended use, and in any case assume all liability for any consequences resulting from such use.

Always refer to the latest updated version of the Technical Data Sheet,

Item specification

The waterproofing of swimming pools, fountains, terraces, balconies, showers, SPAs, Hammams and damp rooms where the subsequent laying of ceramic tiles, natural stones and mosaics is planned, must be carried out with a breathable tri-polymeric waterproof Gel, enhanced with quartz microspheres, superfluid and tixo, with very low cement content that does not require reinforcement mesh, classified as CM 02 P according to the EN 14891 standard, type HydroPad® by Litokol Lab SpA.

Data sheet **n. 631**

Revision **n. 0**

Date: **04 25**

Litokol

Litokol Lab Spa Via G. Falcone 13/1 42048 Rubiera RE Italy
Tel. +39 0522 622811 info@litokol.com www.litokol.com