HydroPad®
Technical Specifications

High-performance, breathable waterproofing gel formulated with an advanced tri-polymer matrix and active quartz microspheres, offering superior flexibility thanks to 4-Way Flex® technology. Variable superfluid and thixotropic rheology, with an extremely low cement content, for waterproofing swimming pools, terraces and showers prior to the installation of tiles and natural stone. Drying time between the first and second coats: 4 hours. Drying time before fitting the cladding: 12 hours.

Product description

High-performance, breathable waterproofing gel formulated with an advanced tri-polymer matrix and active quartz microspheres, offering superior flexibility thanks to 4-Way Flex® technology. Variable superfluid and thixotropic rheology, with an extremely low cement content, for waterproofing swimming pools, terraces and showers prior to the installation of tiles and natural stone.
It is easily applied using a smooth steel trowel, a roller or a brush, even on large surfaces, and, when used in combination with accessories from the HydroBand Anti-Fracture range, creates a continuous waterproof barrier for swimming pools, outdoor areas and damp environments.
It can also be applied over non-absorbent materials, such as existing old tiles.
HydroPad® has a working time of over 1 hour, with a waiting time of 4 hours before applying the second coat and 12 hours before laying the covering; it is recommended for particularly hot and humid climates.

Classified as CM 02 P – EN 14891

Proprietary gel formula

Waterproofing gel incorporating flexible cross-linked polymers
Polymer blends under our own licence offering extended service life under continuous immersion

Very low Portland cement content (< 20%)
Hybrid engineered hydraulic binders
Reinforced with polymerised quartz microspheres resistant to hydraulic degradation
Latest-generation hydrocellulose
High mineral aggregate content

HydroPad® embodies Litokol's ongoing scientific progress.
It is formulated using innovative raw materials to improve the application experience, enhance safety and reduce environmental impact.

Powered by

4-Way Flex® technology

4-way multidimensional flexibility

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

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

Gel Performance Variable-Rheology Membrane

Programmable waterproof membrane

HydroPad® is a waterproof, tri-polymeric mineral gel with variable rheological behaviour, designed to be adjusted by the applicator directly on site through the controlled addition of water, without compromising the integrity of the waterproofing barrier.
HydroPad® can be applied quickly and easily with a trowel, roller or brush to form a uniform finish on large horizontal and vertical surfaces, both absorbent and non-absorbent, whilst maintaining its exceptional flow properties even under extreme conditions of direct sunlight and in hot, breezy climates.
Smart fillers with structural memory allow for overlaps in the product without compromising the continuity of the applied thickness.
Thanks to advanced rheological technology, the working range is very wide and the applicator can increase the mixing water to make the gel superfluid: HydroPad®'s self-levelling consistency is ideal for floor applications, perfect for large surfaces and very hot climates.
The applicator may reduce the amount of water to achieve a thixotropic mixture that remains stable when applied vertically, without running, making it perfect for walls, corners and precision details.

Customise the mix according to climate, surfaces and experience.

In all cases, the waterproof and breathable performance remains unchanged thanks to the self-regulating structure of the HydroPad® system.
HydroPad®'s exclusive RVP – Programmable Variable Rheology – is a compensation mechanism that utilises the adaptive structure of the mineral matrix, which reorganises itself in response to dilution whilst maintaining:
- Internal cohesion of the membrane

- the barrier against liquid water
- Selective breathability with vapour permeability.

The result is that, even when the water-to-product ratio is varied, the waterproof gel does not crack or delaminate and retains its certified waterproofing properties.

Gel Performance Active Breathable Waterproofing

The new frontier in mineral waterproofing

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

Principle of operation

Internal structure with interconnected closed pores. During the polymerisation process, HydroPad® generates a three-dimensional micro-granular reticulated network with micrometric porosity.
The capillary channels formed are sub-micrometre in size, with diameters ranging from 0.05 to 1 µm; they do not allow liquid water to pass through (100 µm – high surface tension) but do allow water vapour (0.0004 µm) to diffuse due to pressure differences.
Active breathability, intelligent sealing. In the presence of liquid water (osmotic pressure, rain, standing water), the matrix seals automatically by utilising the surface tension of the water (72 mN/m), which does not penetrate the pores.
The water vapour generated by damp substrates is a gaseous phase consisting of isolated molecules (0.0004 µm) which finds a selective escape route. These molecules are not subject to surface tension and can diffuse freely outwards through the micropores by exploiting a partial pressure gradient between the interior (moist) and exterior (dry), thereby preventing excess pressure and osmotic phenomena (blistering, delamination). The membrane 'actively breathes', adapting to the residual moisture in the substrate.

Performance Gel: Multi-directional flexible interface

Multidirectional interface with adaptive control of interface transitions (ITZ)

The latest-generation 4-Way Flex® technology is a system offering multidirectional flexibility and deformability, designed to:
- Absorbs structural movements along four simultaneous axes: longitudinal, transverse, vertical and torsional
- Ensure the functional continuity of the waterproofing membrane
- Protect the critical interface between the membrane and the substrate (ITZ) from localised stress, thermal shock, vibrations or differential expansion.

The technical structure of 4-Way Flex® technology is designed to prevent invisible cracks before they form.
The interface between the membrane and the substrate is the most vulnerable area: differences in elastic moduli and coefficients of thermal expansion, as well as imperfect adhesion, generate invisible micro-fractures

that lead to water ingress, delamination triggered by thermal cycles and loss of film cohesion under deformation.
With 4-Way Flex®, the ITZ becomes an active zone where the polymer network of HydroPad® deforms together with the substrate in every direction, compensating for movement gradients.
Stress is not concentrated but is distributed over a wide area, preventing localised fractures: the interface becomes flexible, adaptive and cohesive.

Chemistry + Smart

Very low Portland cement content <20%
Contains recycled mineral aggregates > 35%
Very low emissions of volatile organic compounds (VOCs)

Certifications

CM 02 P - EN 14891
EC1 Plus Gev Emicode
A+ Indoor air emissions
EPD Environmental Product Declaration

HydroPad® and the environment

LCA results for Global Warming Potential – Greenhouse Gases (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-levelling compounds
Levelling Compounds
Plaster and skim coats
Existing tiles
Radiant heating systems
Concrete and reinforced concrete
Plasterboard
Plaster and anhydrite
Fibre-cement sheets
Lightweight panels
Existing cement-polymer waterproofing products

Uses

Interior – exterior
Floors – walls
Overlay
Swimming pools and fountains
Terraces and balconies
SPA and Hammam
Indoor wet areas, bathrooms and showers
Facades
Industrial flooring
Residential, public, commercial and street furniture

Areas subject to heavy footfall and high stress

Limitations

Refer to national standards, such as UNI 11493
The ambient and surface temperatures must be above +5°C at the time of installation and for 72 hours after application
Apply the finish to the membrane within 72 hours in external 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 against direct abrasion until the finish is applied
Do not apply to wet surfaces, damp substrates (> 5% relative humidity) or those subject to rising damp
Do not apply in layers thicker than 2 mm per coat
Do not apply if there is condensation on the surfaces
Do not apply to uneven or excessively rough substrates. Apply a skim coat using HydroLevel® 1-30
Do not use where negative hydraulic pressures are present
Do not leave the product exposed if it is subject to direct abrasion and/or water retention. Always provide a covering of ceramic tiles, natural stone or mosaics
Do not apply the product to bituminous membranes, rubber substrates or substrates treated with resins
Do not apply without the HydroBand Anti-Fracture accessories where required
Protect the waterproofing from heavy rain for the first 4 hours after application
Do not use for applications not listed on this Technical Data Sheet
For further information, please contact Litokol's Technical Customer Service on +39-0522-622811 or via customercare@litokol.com

Product specifications

Composition	Single-component, powdered tripolymer gel
Appearance	Superfluid and thixotropic gel
Colour	Grey
Responsible packaging	15 kg recyclable bag
Shelf life	12 months in original packaging in a dry place.
Customs heading	38245090

Technical Specifications

Compliance	CM 02 P	EN 14891
Initial adhesion	≥ 0.5 N/mm^2	A.6.2
Adhesion after immersion in water	≥ 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 lime water	≥ 0.5 N/mm^2	A.6.9
Adhesion after contact with chlorinated water	≥ 0.5 N/mm^2	A.6.7
Water tightness under positive pressure of 1.5 bar	No penetration and weight gain < 20 g	A7
Crack-bridging capacity under normal conditions	≥ 0.75 mm	A.8.2
Crack-bridging capability at very low temperatures (-20°C)	≥ 0.75 mm	A.8.3

Application Specifications

Consistency of the mix	Superfluid and thixotropic
Preparation of the gel mixture	Water = 22–28% ~ 3.3–4.2 l/15 kg
Dough proving time	5 minutes
Pot life	> 60 minutes
pH of the mixture	8 - 9
Specific gravity of the mixture	1.48 kg/dm^3
Total thickness (dry)	> 2 mm
Application	Smooth steel trowel, roller or brush
Permissible application temperatures	From +5°C to +35°C
Drying time between the first and second coats	4 h
Waiting time before laying the covering	12 h
Operating temperature	From -20°C to +90°C
Cleaning of equipment	With water when the product is fresh. Mechanically once the product has hardened.
Coverage	2.3 kg/m^2 in two hands
Notes	Data recorded at a temperature of +23 °C, 50% RH and in the absence of ventilation. These may vary depending on specific site conditions

Preparation of substrates

In accordance with standard UNI 11493-1, substrates and coatings based on concrete, cement and plaster must be adequately cured and must not show signs of excessive moisture emission, condensation, efflorescence or hydrostatic problems.
Substrates must be mechanically sound and free from loose particles, grease, oil, paint, wax and rising damp.
Cement-based plasters must be allowed to cure for at least one week per centimetre of thickness.
For surfaces frequently exposed to contact with water, such as balconies, terraces and shower floors, check that the gradients and the size of the drainage systems are adequate to allow proper water runoff, taking into account the size of the exposed surface and the maximum expected wetting conditions.
Generally, a gradient of 1–1.5% is sufficient to ensure proper water drainage.
Any levelling of cementitious substrates or the creation of gradients can be carried out using the fast-setting, non-shrink structural levelling compound HydroLevel® 1-30.

In applications in sunny, hot and windy climates, dampen porous substrates and apply the product to dry surfaces.
Cement-based screeds must have a total curing time of at least 28 days or be laid using the innovative X-Floor® and X-Floor® Pro anti-crack screeds.
Create gradients on balconies or pavements using the HydroLevel® 1-30 levelling compound.
Dusty, porous and absorbent substrates can be treated with X-Prime®, an innovative fixative and consolidant.
Smooth, compact substrates, such as old ceramic tiles or terrazzo, must be treated with the specific detergent X-Cleaner® Scrub.
In the case of anhydrite screeds, ensure that a suitable vapour barrier is in place to prevent any rising damp.
Check using a carbide hygrometer that the residual moisture content is less than 0.5% and 0.3% for underfloor heating screeds.
Any cracks or fissures must be sealed with CrackRepair.

In any case, it is essential to consult the relevant technical data sheets to ensure the correct use of the products indicated.

Preparation of the mix

To fully appreciate the superior flow properties and thixotropy of the innovative superfluid and thixotropic Gel mixture, we recommend mixing the product using the specified mixing ratio.
Pour the correct amount of water into a container and slowly add the product, mixing with a mechanical mixer until a creamy, homogeneous mixture free from lumps is obtained.
Leave the mixture to rest for about 5 minutes, during which time the polymeric gel develops fully: the hydraulic binders, fillers and cellulose hydrate uniformly, the micro-air bubbles incorporated during mixing are eliminated and the polymers begin the activation process.
Stir briefly to achieve the superfluid, thixotropic gel consistency, which is easy to apply to both floors and walls.

Application

To ensure complete waterproofing, begin the waterproofing process by bonding the specialised components from the HydroBand Anti-fracture range using HydroPad® at corners, edges, wall-to-floor and wall-to-wall junctions, changes in slope and at movement joints (separation, expansion and decoupling).
The waterproofing of movement joints must be carried out by inserting the HydroBand Anti-Fracture sealing tape, folded into an omega shape, into the joint.

Next, apply the first coat of HydroPad® evenly directly onto the substrate using a smooth steel trowel, a long-pile acrylic roller or a brush to a consistent thickness of approximately 1 mm, taking care to cover the entire surface to be waterproofed, ensuring the membrane overlaps any previously bonded fittings to guarantee perfect continuity and sealing.
The drying time is approximately 4 hours, although this may vary depending on site conditions such as temperature, ambient humidity and ventilation.
Once the first coat is completely dry, apply a second coat of HydroPad® evenly to a consistent thickness of approximately 1 mm, ensuring that all surfaces to be waterproofed are fully covered.
The flexible, waterproof gel, which is flexible in all four dimensions, adapts to the movements and deformations of the substrates without compromising its high adhesion and total waterproofing, and does not require the use of fibre reinforcement mesh.
The use of HydroMesh Anti-Fracture, embedded in the first fresh coat of HydroPad® and completely covered with the second coat of the product, is intended solely to ensure full coverage of the surfaces to be waterproofed, with a minimum required thickness of 2 mm.

To ensure a perfect seal with the waterproofing membrane where services such as pipes, drains and light fittings pass through, use the special HydroCollar or HydroDrain sealing components, which must be positioned and embedded in the first coat of HydroPad® and subsequently covered with the second coat.
As an alternative to using the special HydroCollar or HydroDrain sealing fittings, it is possible to connect the system's feed-through body and the cured HydroPad® using HydroPixel®, the sealant specifically designed for underwater applications.

The professional applicator will create a groove approximately 3–4 mm wide around the through-body and, after cleaning the surfaces, will apply HydroPixel® to form a continuous joint bead between the through-body and the surface of the HydroPad®, taking care to press firmly and finish by smoothing the surface to ensure complete filling and perfect adhesion.
Please consult the technical data sheets for the products listed before use.

Flooring installation

The application of finishes may be carried out at least 12 hours after the final coat under standard conditions.
The installation of ceramic tiles, natural stone or mosaics will be carried out using the high-performance PowerGel® S1+ or PowerGel® S2+ gels, based on Litokol science, which guarantee complete force transfer, consistent system performance and total safety.
To ensure perfect adhesion of the Adhesive Gel to the HydroPad® Waterproof Gel, apply a thin, even layer of the mixture using the smooth side of the trowel and, immediately afterwards, apply the desired thickness using the notched side.
In accordance with the UNI 11493-1 standard, use the double-coating technique, applying the gel to the back of the tiles as well to ensure they are fully saturated during installation in areas where the substrate may be subject to movement or expansion, outdoors, in swimming pools or in areas subject to particularly high stress.
In accordance with the UNI 11493-1 standard, tiles must be laid with joints of a width appropriate to their size (minimum 2 mm).
For grouting in swimming pools, outdoors and in damp areas, we recommend using Starlike® Pro or Starlike® Easy.
Take account of any partition or structural joints and provide suitable expansion, partition and perimeter joints.

Warnings

Due to the high content of adhesive polymers, it is recommended to wash tools and remove any product residue from 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, please refer to the latest version of the Safety Data Sheet, available at www.litokol.com
PRODUCT FOR PROFESSIONAL USE

Legal notices

The information and specifications contained in this Technical Data Sheet are based on our best knowledge.
However, as we are unable to directly influence site conditions or the execution of the works, these are general guidelines which do not in any way bind our Company.
We therefore recommend carrying out a preliminary test to verify the product's suitability for the intended use; in any case, anyone intending to use it is required to determine whether or not it is suitable for the intended use and, in any event, assumes all liability that may arise from its use.
Always refer to the latest updated version of the Technical Data Sheet,

Specification item

The waterproofing of swimming pools, fountains, terraces, balconies, showers, spas, hammams and damp areas where ceramic tiles, natural stone and mosaics are to be laid subsequently must be carried out using a high-performance, breathable waterproofing gel, formulated with an advanced tripolymer matrix and active quartz microspheres, super-flexible with 4-Way Flex® technology, with variable superfluid and thixotropic rheology, very low cement content, a waiting time of 2 hours between the first and second coats, and a waiting time of 6 hours before laying the covering; classified as CM 02 P in accordance with standard EN 14891, type HydroPad® by Litokol Lab SpA.

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