HydroCrystal® Pro
Technical Specifications

A hydro-reactive, 2-component, low-cement-content elastocrystalline membrane for crystalline structural waterproofing and elastic protection of concrete and masonry structures subject to both negative and positive hydrostatic pressure. Exposed protection for plant rooms, tanks and channels containing chlorinated water. Under-tile waterproofing on damp substrates and in negative pressure conditions. High resistance as an exposed waterproof substrate for raised external floors.

Product description

Low-cement, hydro-reactive 2-component elastocrystalline membrane for crystalline structural waterproofing and elastic protection of concrete and masonry structures, foundations and underground spaces subject to negative and positive hydrostatic pressure. By interacting with the moisture present in the substrate, it seals the capillary pores and micro-channels through which water passes in the concrete, transforming the substrate into a structural waterproof barrier. The coating guarantees high resistance to severe chemical attack, direct abrasion and wet-dry cycles. It helps to provide flexible protection for concrete structures against degradation processes, such as carbonation, salt penetration and the formation of micro-cracks, thereby extending their long-term durability. The crystalline barrier forms within the substrate matrix and is not subject to surface delamination. Provides visible waterproofing for damp rooms, plant rooms, balancing tanks and drainage channels containing chlorinated water in swimming pools. Flexible under-tile waterproofing for damp substrates (relative humidity <8%) and against water pressure. High resistance as a waterproof, visible, wear-resistant substrate for raised outdoor flooring.

Classified as 1 (PI), 2 (MC), 6 (RC) and 8 (IR) – EN 1504-2 (C)

Classified as CM 02 P – EN 14891

Proprietary formula

Hydro-reactive 2K elastocrystalline membrane with crystallising action
Proprietary hybrid polymer-mineral blend offering extended longevity in continuous immersion
Low Portland cement content (< 30%)
Hybrid engineered hydraulic binders
Reactive silicates
Polymeric booster
High mineral aggregate content

HydroCrystal® Pro 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

CrystalFlex® technology

Flexible hybrid crystallisation

The dual-action structural technology waterproofs through crystallisation and provides flexible protection: the mineral component densifies the interface with the concrete and progressively reduces capillary pathways, thereby decreasing structural permeability.
The polymer elasticity reacts within this matrix, ensuring crack-bridging capability over micro-cracks and long-term waterproof continuity that resists carbonation and sulphation.
CrystalFlex® technology incorporates a mineral matrix designed to activate in the presence of moisture: when applied to a damp substrate, the water present in the concrete triggers the mineral reaction, resulting in the formation of a compact crystalline microstructure that densifies the interface zone, progressively reducing capillary pathways.
The higher the moisture content in the substrate, the greater the activation of the system.

Flexible waterproofing compound with active crystallising action

Structural waterproofing of concrete
Thanks to CrystalFlex® technology, HydroCrystal® Pro forms a compact mineral matrix that is integrated into the substrate's structure, reducing capillary permeability and preventing the penetration of external aggressive chemicals dissolved in water – such as CO_2, chlorides and sulphates – which cause the oxidation of reinforcing steel.

Flexible waterproofing
The inclusion of the polymeric booster, the active component of the formulation, gives the membrane a high degree of deformability, ensuring continuous waterproofing even on critical structures. This technology enables the HydroCrystal® Pro membrane to adapt dynamically to stresses on the substrate, helping to prevent the main forms of degradation, such as the formation of micro-cracks and the progressive loss of compactness in the matrix due to water absorption. The result is flexible, continuous and durable protection, capable of maintaining its waterproofing performance over time, even under extreme conditions.

Positive and negative waterproofing
HydroCrystal® Pro, featuring active crystallising technology and matrix, transforms the concrete surface into a structural barrier capable of withstanding positive and negative hydrostatic pressure and localised water ingress.

Waterproofing integrated into the concrete matrix
The active ingredients of HydroCrystal® Pro, which act via capillary action, work in synergy with the mineral matrix of the concrete, contributing to its densification and internal stabilisation. The result is permanent structural waterproofing integrated into the concrete matrix.

Chemistry + Smart

Low Portland cement content <30%
Contains recycled mineral aggregates > 35%
Very low emissions of volatile organic compounds (VOCs)

Certifications

1(PI), 2(MC), 6(RC), 8(IR) – EN 1504-2 (C)
CM 02 P - EN 14891
EC1 Plus Gev Emicode
A+ Indoor air emissions

Substrates

Concrete and reinforced concrete
Heavy masonry and stone masonry
Thermobrick and concrete block masonry
Screeds, plasters and skim coats
Existing tiles
Metals
Wood and engineered wood panels
Plastics and PVC
Fibreglass

Uses

Interior – exterior
Floors – walls
Foundations and retaining walls
Basements, lift shafts, service rooms and damp rooms
Compensation tanks and drainage channels in swimming pools
Tanks, reservoirs, channels and hydraulic structures, including suspended ones
Swimming pools, fountains, balconies, terraces, pavements, roof terraces, spas, hammams, bathrooms, showers and kitchens, even where negative pressure is present (under CM 02 P tiles)
Damp substrates (relative humidity <8%)
Pools and planters
Overlay
Wear-resistant substrates for raised outdoor floors on pedestals
Residential, public, commercial and street furniture

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
Do not apply to wet surfaces, damp substrates (relative humidity > 8%) 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 with HydroLevel®
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	Crystallising mineral premix + elasticising polymer latex
Appearance	fluidtixo® thin membrane
Colour	White
Responsible packaging	20 kg recyclable bag + 5 kg jerrycan
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

Compliance	1(PI), 2(MC), 6(RC), 8(IR)	EN 1504-2 (C)
CO_2 permeability	S_d>50 m	EN 1062-6
Water vapour permeability	Class I, SD ^{2}	EN 7783
Capillary absorption and permeability to liquid water	w ≤ 0.1 kg/m^2*h$^{0.5}$	EN 1062-3
Resistance to severe chemical attack	Class II	EN 13529
Bond to concrete	>0.8 N/mm^2	EN 1542
Adhesion after immersion in chlorinated water	>1.1 N/mm^2	EN 1542
Adhesion after immersion in lime water	>1.1 N/mm^2	EN 1542
Adhesion to metal	>1.0 N/mm^2	EN 1542

Adhesion to metal after immersion in water	>1.0 N/mm^2	EN 1542
BCA wear resistance	AR2	EN 13892-4
Water resistance under negative pressure	>1.5 bar	UNI 8298-8 mod.

Application Specifications

Consistency of the mix	Fluidtixo®
Mix preparation	20 kg powder + 5 kg latex
Dough proving time	5 minutes
Pot life	> 60 minutes
pH of the mixture	8 - 9
Specific gravity of the mixture	2.00 kg/dm^3
Total thickness (dry)	> 2 mm
Application	Smooth steel trowel
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	8 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.
Commissioning	~5 days
Coverage	3.7 kg/m^2 in two coats
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

Concrete- and cement-based substrates and coatings must be adequately cured and show no signs of excessive moisture emission, condensation, efflorescence or hydrostatic problems at the time of application.
Substrates must be mechanically sound and free from loose particles, grease, oil, paint, wax and rising damp.
Cement-based screeds and renders must be adequately cured and free from brittle areas or cracks.
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®.
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 applications in sunny, hot and windy climates, dampen porous substrates and apply the product to dry surfaces.
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

Mix the product using the specified mixing ratio of 20 kg of powder + 5 kg of latex; do not alter the ratio or prepare partial batches without weighing the components on a set of scales.
Pour all the latex from the container into a clean 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 elastocrystalline membrane develops fully: the hydraulic binders, fillers and cellulose hydrate evenly, the micro-air bubbles incorporated during mixing are eliminated and the polymers begin the activation process.
Stir briefly to achieve a fluid-thixotropic consistency that 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 with HydroCrystal® Pro at corners, edges, wall-to-floor and wall-to-wall junctions, changes in slope and at movement joints (separation, expansion and decoupling).
Alternatively, create transition chamfers at wall-to-wall and wall-to-floor corners using HidroLevel® 1-30 mixed with BoostGel diluted in water in a 1:1 ratio; before creating the transition chamfer, use a power tool to cut out a suitable recess at the corner, remove any dust and dampen the area.
The waterproofing of movement joints must be carried out by bonding the HydroBand Anti-Fracture sealing tape with HydroCrystal® Pro at the joints.
Next, apply the first coat of HydroCrystal® Pro evenly directly onto the substrate using a smooth steel trowel, applying firm pressure to achieve a consistent thickness of approximately 1 mm; coat the entire surface to be waterproofed, ensuring the membrane overlaps any previously bonded accessories 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 HydroCrystal® Pro evenly to a consistent thickness of approximately 1 mm, ensuring that all surfaces to be waterproofed are covered.
No fibre reinforcement mesh is required.
The use of HydroMesh Anti-Fracture, embedded in the first fresh coat of HydroCrystal® Pro and completely covered by the second coat of the product, serves solely to ensure full coverage of the surfaces to be waterproofed with a minimum required thickness of approximately 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 are to be positioned and embedded in the first coat of HydroCrystal® Pro 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 through-body of the systems and the cured HydroCrystal® Pro using the specific sealant for underwater applications, HydroPixel®.
The professional applicator will create a groove approximately 3–4 mm wide around the through-body fitting and, after cleaning the surfaces, will apply HydroPixel® to form a continuous joint between the through-body fitting and the HydroCrystal® Pro surface, taking care to press firmly and finish by smoothing the surface to ensure complete filling and perfect adhesion.

To ensure maximum cleanability and durability of applications not covered

with tiles or natural stone, apply Microcemento® Xtreme, a transparent, water-based PU protective gel, to the fully cured surface in three coats (~100 g/m^2 per coat).
Alternatively, the surface of HydroCrystal® Pro can be decorated with Resina+®, a water-based coloured PU resin (~200 g/m^2 in total), applied in two coats, followed by a single coat of Microcemento® Xtreme.
Where HydroCrystal Pro® is in permanent contact with water (tubs, channels, tanks), the two cycles described must be preceded by the application of X-Prime Pro, a water-based transparent EP primer (~200 g/m^2).
Please consult the technical data sheets for the products listed before use.

Flooring installation

Tiles may be laid at least 8 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 HydroCrystal® Pro, apply a thin, even coat 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 its high content of adhesive polymers, it is recommended to wash tools and remove any product residue from surfaces with water before HydroCrystal® Pro hardens; once 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, available on the website www.litokol.com

Specification item

The waterproofing of foundations, earth-retaining walls, underground rooms, lift shafts, service rooms, damp rooms, compensation tanks and drainage channels in swimming pools, tanks, reservoirs, channels, hydraulic structures (including suspended ones) and sub-bases for outdoor raised floors with pedestals shall be carried out using a 2K hydro-reactive elastocrystalline membrane for crystalline structural waterproofing and elastic protection of concrete and masonry works subject to negative and positive hydrostatic pressure, with low cement content, which does not require reinforcement mesh, classified as 1(PI), 2(MC), 6(RC), 8(IR) in accordance with standard EN 1504-2(C) and classified as CM 02 P in accordance with standard EN 14891, type HydroCrystal® Pro by Litokol Lab SpA.

The waterproofing of swimming pools, fountains, balconies, terraces, pavements, roof terraces, spas, hammams, bathrooms, showers and kitchens – even in the presence of negative water pressure and damp substrates – prior to the laying of ceramic tiles, porcelain stoneware or mosaics using Litokol's high-performance gels, shall be carried out using a 2K hydro-reactive elastocrystalline membrane for crystalline structural waterproofing and elastic protection of concrete and masonry structures subject to negative and positive hydrostatic pressure, with low cement content, which does not require reinforcement mesh, classified as CM 02 P in accordance with standard EN 14891 and classified as 1(PI), 2(MC), 6(RC), 8(IR) in accordance with standard EN 1504-2(C), HydroCrystal® Pro type by Litokol Lab SpA.

Product details **No. 651**
Revision **No. 0**
Date: **01 26**

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