Drymortar

Fine-grained, fiber-reinforced thixotropic structural cementitious mortar with crystallizing technology for the restoration and active waterproofing of concrete

Drykos® **Drymortar** is a single-component, thixotropic, fiber-reinforced, and shrinkage-compensated structural cementitious mortar with a fine grain size (≤ 0.6 mm), developed for the cortical restoration and protection of concrete.
The product is formulated with high-strength cements, super-pozzolanic fillers, selected aggregates, and polymer fibers, integrated with Drykos crystallizing technology, which enables the formation of insoluble crystalline complexes within the cementitious matrix. These crystals, developing within the pores and capillaries of the substrate, create an active waterproofing system capable of blocking water penetration even under pressure and protecting the concrete from the action of aggressive agents and chlorides. The crystallizing reaction reactivates over time in the presence of moisture, contributing to the progressive reduction of the material's permeability and promoting self-healing phenomena of micro-cracks.
Unlike traditional mortars, Drykos® **Drymortar** is not limited to the mechanical restoration of the substrate but creates a waterproof barrier integrated into the structure, significantly increasing the durability and protection of the intervention.

CHARACTERISTICS

Drykos Technology

Drykos® crystallizing technology is distinguished by its efficiency through a chemical reaction with moisture and the by-products of cement hydration. This process generates, within the pores, capillaries, and cavities of the concrete, an insoluble crystalline complex that prevents water penetration. This complex becomes an integral part of the concrete mass, ensuring its resistance to water and aggressive chemical agents from any direction, promoting restoration and protection, imparting waterproof properties, and increasing its durability and service life.

Certifications

CE **EN 1504-3** Products and systems for the protection and repair of concrete structures - Structural and non-structural repair	 **POTABLE WATER** Coating suitable for contact with water intended for human consumption in accordance with Ministerial Decree 174/2004 and Legislative Decree 18/2023.

Main characteristics

- Cortical restoration of degraded concrete cover
- Low-thickness structural skimming
- Repair of gravel nests, defects, and concrete non-conformities
- Sealing of formwork spacer holes
- Interventions on structures exposed to water and moisture
- Tanks, reservoirs, and water treatment plants
- Tunnels, underground works, and marine structures
- Protection and waterproofing of concrete surfaces

Fields of use

- Fine structural mortar with high workability
- Drykos crystallizing technology
- Self-healing effect over time
- Integral waterproofing of the matrix
- High adhesion to the substrate
- Fiber-reinforced for increased cracking resistance
- Shrinkage-compensated
- High resistance to chlorides and aggressive agents
- Excellent surface finish
- Suitable for contact with drinking water

Green Technology & LEED

Product formulated to reduce environmental impact, characterized by very low VOC emissions (Very Low Emission), suitable for contributing to LEED credits for indoor air quality and compliant, where applicable, with CAM (Minimum Environmental Criteria) requirements, also thanks to the recycled material content.

SPECIFICHE TECNICHE

Packaging

10 kg bucket	25 kg bucket

Color

Gray.

Appearance

Powder.

Shelf life

12 months from production date.

Storage conditions

Store correctly in the original, sealed, intact packaging, protected from moisture and direct sunlight, at temperatures between +5°C and +35°C.

APPLICATION DATA

Theoretical consumption
~ 19 kg/m² per cm of thickness.

Coverage
~ 1,900 kg per m³ of mortar.

Thinner
Water.

Application temperature
Minimum +5°C | Maximum +35°C

APPLICATION INFO

Substrate preparation

The substrate must be previously prepared by completely removing degraded, loose, or contaminated parts until a solid and resistant substrate is reached.
Surfaces must be appropriately roughened by scarification, sandblasting, or high-pressure hydro-scarification to ensure high mechanical adhesion. Any exposed reinforcement bars must be uncovered, cleaned of oxides and rust by brushing or sandblasting and, if necessary, treated with Drykos® **Renov Steel** passivator.
Before application, the substrate must be saturated with water to a “saturated surface dry (SSD)” condition, eliminating any surface ponding.

Product preparation

Drykos® **Drymortar** is a single-component product to be mixed with clean water. Pour approximately 2/3 of the mixing water into the mixer, then gradually add the powder product under continuous agitation, completing with the remaining water until a homogeneous, plastic, and lump-free mixture is obtained. Mixing must be performed using a low-speed mechanical stirrer for at least 3-5 minutes. The water/product ratio is approximately 18-19% by weight (~ 4.5–4.75 liters per 25 kg bag), which must be respected to ensure mechanical performance and the effectiveness of the crystallizing system.
It is recommended to prepare only the amount of product that can be applied within the workability time.

Application

Drykos® **Drymortar** can be applied by trowel, spatula, float, or spray with suitable equipment. The product must be applied to a prepared and saturated (SSD) substrate, exerting adequate pressure to ensure perfect adhesion and complete closure of porosities.
Application can be carried out in one or more layers, with indicative thicknesses between 2 and 20 mm per layer. For greater thicknesses, it is necessary to proceed in successive layers or provide reinforcement mesh adequately anchored to the substrate.
During installation, it is important to avoid unfavorable environmental conditions (wind, direct sun, high temperatures) that could cause rapid water evaporation. After application, it is essential to ensure correct wet curing for at least 48-72 hours to promote the development of strength and optimal activation of the crystallizing system.
Over time, in the presence of water or moisture, the crystalline system continues to develop within the cementitious matrix, progressively improving waterproofing and contributing to self-healing phenomena.

Tool cleaning

Clean tools with water immediately after use. Hardened product can only be removed mechanically.

Other indications

- Do not apply at temperatures below +5°C or above +35°C, nor in the presence of frost risk during the initial hardening stages
- Avoid application on frozen, loose, contaminated, or inadequately prepared substrates, as this can compromise the adhesion and final performance of the system
- Do not exceed the recommended mixing water values (18–19% by weight) to avoid segregation phenomena, reduction of mechanical strength, and loss of effectiveness of the crystallizing system
- Do not remix the product by adding water after the initial set has begun
- Apply the product within the workability time and prepare only the amount necessary for immediate use
- In unfavorable climatic conditions (high temperatures, wind, low relative humidity), adopt adequate protection measures to prevent rapid evaporation of the mixing water
- Carefully manage wet curing for at least 48-72 hours by water misting, covering with sheets, or using anti-evaporation systems, to ensure the correct development of mechanical strength and optimal activation of the crystallizing process
- For applications in environments in continuous contact with water (tanks, reservoirs), allow for an adequate curing time before commissioning
- For high thicknesses or significant structural interventions, provide suitable reinforcement and anchoring systems to the substrate
- For anything not covered, contact Technical Support at +39 0171 1874992 or write to info@drykos.com

TECHNICAL PERFORMANCE

Characteristic	Test method	Standard requirements	Performance
Density	EN 1015-6		2080 kg/m³
Pot life			30-40 minutes
Minimum recommended thickness			2 mm
Maximum recommended thickness			20 mm
Mixing water			18-19%
Flow	EN 13395		170 mm
Compressive strength at 24 hours	EN 12190		16 N/mm²
Compressive strength at 7 days	EN 12190		38 N/mm²
Compressive strength at 28 days	EN 12190	Structural - Class R3 ≥ 25 N/mm² | Class R4 ≥ 45 N/mm²	Class R4: 46 N/mm²
Flexural strength at 24 hours	EN 196-1		4 N/mm²
Flexural strength at 7 days	EN 196-1		6.2 N/mm²
Flexural strength at 28 days	EN 196-1		6.2 N/mm²
Chloride ion content	EN 1015-17	≤ 0.05%	0,04%
Adhesive bond	EN 1542	Structural - Class R3 ≥ 1.5 N/mm² | Class R4 ≥ 2.0 N/mm²	Class R3: ≥ 1.5 N/mm²
Carbonation resistance	EN 13295	dk ≤ control concrete	0.5 mm

Characteristic	Test method	Standard requirements	Performance
Elastic modulus	EN 13412	≥ 20 kN/mm²	22.4 kN/mm²
Thermal compatibility Part 1, freeze-thaw	EN 13687-1	≥ 2.0 N/mm²	≥ 2.0 N/mm²
Capillary absorption	EN 13057	≤ 0.5 kg·h^0.5/m²	≤ 0.5 kg·h^0.5/m²
Reaction to fire	EN 13501-1		Class F
CAM - Total recycled material content	UNI PdR 88		≥ 2.7%

ENVIRONMENT AND SAFETY

VOC

Very Low Emission (70 µg/m³).

Safety

For information and advice on safety, handling, storage, and disposal, users of the product must refer to the most recent version of the Safety Data Sheet, which provides information on the physical, ecological, and toxicological characteristics of the product. If necessary, request the updated Safety Data Sheet by contacting Customer Service at +39 0171 1874992 or writing to info@drykos.com. Product compliant with the requirements of Regulation (EC) No. 1907/2006 (REACH) and Annex XVII, entry 47 and subsequent amendments and additions.

Use

For professional use.

WARRANTIES AND LEGAL NOTES

Should the product be defective, the liability of Drykos S.r.l. shall be limited solely to its replacement. The information and instructions in this technical data sheet regarding the application and end-use of the products are provided in good faith and reflect current scientific and technical knowledge; however, they do not constitute any guarantee or assumption of liability regarding the final outcome of the work involving their use. Given the variety of operating conditions and external factors beyond the control of Drykos S.r.l. during execution, it is the user's responsibility to verify the product's suitability for the specific application, assuming all risks and liabilities. Drykos S.r.l. reserves the right to modify the properties of its products at any time. Always refer to the most recent version of the product's technical data sheet. This edition cancels and replaces all previous versions. The latest updated technical data sheets are available on our portal at www.drykos.com.