

LITOKOL X11 – LITOKOL X12

High performance cementitious adhesives, with no vertical slip and extended open time for the laying of ceramic tiles indoors and outdoors on flooring and walls.



DESCRIPTION

White (LITOKOL X12) and grey (LITOKOL X11) powder cementitious adhesives based on Portland cement, inert limestone fillers of selected particle size and specific organic additives giving the product ideal water retention, anti-slip property and better adhesive capacity. When the products are mixed with water they generate a mortar characterised by excellent application properties and long open time. The product hardens without significant shrinkage, developing an ideal adhesion degree between ceramics and the standard substrates used in the building industry.

ADVANTAGES

- Products with low emission of volatile organic compounds (VOC) compliant with classes EC1-RPLUS (EMICODE) and class A+ (French Regulation).
- The adhesive mortar is characterised by ideal thixotropy making it possible to lay ceramics on the wall without needing to apply plastic spacers.

EN 12004 CLASSIFICATION

Litokol X11 and Litokol X12 are a class C2TE improved cementitious adhesive, with no vertical slip and extended open time for indoor and outdoor

ceramic tiling on flooring and walls. The compliance of the products with the EN 12004 harmonised standard is reported in the Declaration of Performance CPR-IT001-G (X11) and CPR-IT001-B (X12) according to the European Regulation for construction products (CPR - Construction Products Regulation N: 305/2011/EU) and tested by a notified European body according to system 3 certification.

PACKAGING

25 kg sacks - 1500 kg standard pallet.

INTENDED USE

Litokol X11 and Litokol X12 can be used to lay any type of ceramic tiles (except for thin slabs with a glass mat on the back), in the following environments:



Interior flooring in residential and public/commercial areas (pedestrian areas)

Substrates	Greater allowed side of the tiles (cm)
Cement screeds or Litocem/Litocem base Ready without heating	≤ 60
Cement screeds or Litocem/Litocem base Ready with heating	≤ 30
Sulphate based screed (anhydrite) without heating system (1)	≤ 60
Sulphate based screed (anhydrite) with heating system (1)	≤ 30
Concrete cast in-situ (2)	≤ 60
Pre-existing substrates made of old tiles, mosaics, stone or tiles (3)	≤ 30
Pre-existing substrates with residues of organic adhesives(4)	≤ 30
Substrates waterproofed with Litoproof	≤ 30
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex	≤ 30



Interior flooring in public/commercial and industrial areas with transit of heavy loads

Substrates	Greater allowed side of the tiles (cm)
Cement screeds or Litocem/Litocem base Ready without heating	≤ 60
Concrete cast in-situ (2)	≤ 90
Pre-existing substrates made of old tiles, mosaics, stone or tiles (3)	≤ 30
Pre-existing substrates with residues of organic adhesives (4)	≤ 30
Substrates waterproofed with Litoproof	≤ 30
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex	≤ 30



Interior walls in residential, public/commercial and industrial areas

Substrates	Greater allowed side of the tiles (cm)
Lime/cement plaster	≤ 90
Gypsum-based plaster (1)	≤ 90
Concrete cast in-situ (2)	≤ 60
Precast concrete	≤ 60
Pre-existing substrates made of old tiles, mosaics, stone or tiles (3)	≤ 30
Substrates waterproofed with Litoproof	≤ 30
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex	≤ 30
Fibre cement and concrete panels	≤ 30
Gypsum board (5)	≤ 30
Elements in autoclaved aerated concrete (6)	≤ 90



External flooring in residential, public/commercial and industrial areas

Substrates	Greater allowed side of the tiles (cm)
Cement screeds or Litocem/Litocem base Ready without heating	≤ 60
Concrete cast in-situ (2)	≤ 60
Pre-existing substrates made of old tiles, mosaics, stone or tiles (3)	≤ 30
Substrates waterproofed with Aquamaster, Elastocem, Coverflex	≤ 30



External walls

Substrates	Greater allowed side of the tiles (cm)
Lime/cement plaster	≤ 30
Concrete cast in-situ (2)	≤ 30
Precast concrete	≤ 30
Substrates waterproofed with Aquamaster, Elastocem, Coverflex	≤ 30
Fibre cement panels	≤ 30

Key

- (1) Following treatment with Primer C or Primer X94. Maximum humidity = 0,5%.
- (2) Maturing time: minimum 6 months.
- (3) After cleaning and degreasing with a solution of water and caustic soda.
- (4) After treatment with Litofix.
- (5) Following treatment with Primer C or Primer X94 for non-waterproof plasterboard.
- (6) After treatment with Primer X94.

TILING DESIGN

The durability of a ceramic tile can only be guaranteed by means of a good design of the same. We recommend that you consult with the national legislation in your country such as for example UNI 11493:2013 for Italy which provides the necessary guidelines for choosing materials, correct design, use and installation, in order to ensure the achievement of the required levels of quality, presentation and durability.

By way of example we show some requirements to adopt as a general rule
Substrates- Before laying, check that the substrates are clean, free from

loose particles, thoroughly dry and mature, flat and level, and have sufficient mechanical strength in accordance with the intended use of the tiling.

Site conditions - Make sure the conditions for temperature, humidity, lighting, etc. are adequate when the product is applied.

Materials - Verify that all materials involved in the tiling (ceramics, levellers, adhesives, sealants, waterproofing products, etc.) are suitable for the intended use and properly stored.

Expansion joints - Verify that the perimeter flexible expansion, fraction and structural joints are properly designed and prepared. Generally fraction joints



must be provided for 20/25 m² partitions indoors and 9-15 m² outdoors. For outdoors, verify that these joints are properly waterproofed and sealed.

Double coating - When laying outdoors, swimming pools, large formats, floors subject to heavy or intense traffic, thin slabs, vibrating substrates and situations where there are large changes in temperature, you need to apply the adhesive mortar on both the substrate and the back of the tiles in order to obtain a full bed of adhesive free from voids.

Joints - In all types of ceramic tiling the grout joints must be of suitable width in accordance with the following parameters:

- type, format and dimensional tolerances of the tiles;
- thermal expansion coefficients of the materials constituting the tiling;
- mechanical properties of the laying materials;
- location and path of the joints;
- mechanical features of the substrate;
- target environment and planned operating conditions.

Laying with closed joints is not allowed. Any plastic spacers are to be removed before grouting.

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MIXING PROPORTION

LITOKOL X11 – LITOKOL X12: 25 kg (1 sack) – **WATER** 7,5 l (30%)

PREPARING THE MIXTURE

Pour a suitable amount of water into a clean container and slowly add the powder, mixing with an electric drill fitted with a propeller mixer until you get a mix that is smooth and without lumps. Let the mix rest for at least 5 minutes and mix again for a few seconds.

APPLICATION

Spread the mixture onto the substrate using the smooth part of the trowel to create a thickness of approx. 1mm and then immediately apply the product with the notched part of the trowel. The notches of the trowel must be chosen based on the format of the tiles to be laid. In any case, it must allow a wetting of the reverse side of the tiles by 65-70% in the case of indoor installation and by 100% in case of outdoor installation or for floors subject to heavy traffic. When laying outdoors or in areas that are particularly stressed, it is recommended to also apply the adhesive on the back of the tiles (double coating method).

The tiles are laid on the adhesive using a firm pressure in order to ensure contact with the adhesive. The open time of the product in normal temperature and humidity conditions is approximately 30 minutes. Very hot or windy climates or very absorbent substrates can drastically reduce the open time of the product to a few minutes, therefore it is recommended to frequently check that the adhesive has not formed a superficial skin. If a superficial skin has formed it is necessary to go over the adhesive with the notched trowel. The tiles must be laid creating grout joints of suitable width. During installation,

respect any expansion, perimeter, fraction or structural joints. The tiled surface must be protected for at least 24 hours from any water and for approx. 5-7 days from frost or direct sunlight.

GROUTING

The grout joints between the tiles can be sealed after 6-8 hours in the case of walls and after 24 hours for floors. The cement sealants **Litochrom 0-2**, **Litochrom 1-6**, **Litochrom 3-15** and **Starlike® Monomix** can be used for grouting. In the case of acid-resistant floors or when tiling swimming pools, we recommend using two-part epoxy mortar **Epoxystuk X90** or **Starlike®**.

WARNINGS

- Do not add lime, cement or other foreign materials to the product.
- Apply the product at a temperature between +5°C and +35°C.
- Respect the mixing proportion.
- If laying on external walls, as the tiled surfaces are notably tall (>3m) and subject to high dilatometric stress due to thermohygroscopic changes, and considering the safety risk connected to a tile detaching, it is advisable to preventively consult the Litokol technical office in order to define exactly which products are suitable and what the safest installation technique is.
- Do not apply the product on plastic, resilient, wood or metal materials or on substrates treated with resins.
- Do not use the product to lay thin slabs reinforced with a glass mat on the back.
- Do not apply the product thicker than 5 mm.
- Do not apply the product on floors which must be walked on after a short time.
- Do not use the product for applications not stated in this technical data sheet.
- In case of doubt, contact the Litokol S.p.A. Technical Assistance.

INFORMATION ON SAFETY

Refer to the product's safety sheets available upon request.

PRODUCT FOR PROFESSIONAL USE

SPECIFICATIONS

Laying ceramics or mosaics on floors and coatings even in swimming pools is carried out with cementitious adhesive, enhanced with zero vertical slip and extended open time, class C2TE according to Standard EN 12004 such as Litokol X11 and Litokol X12 by Litokol S.p.A.

IDENTIFICATION DATA	
Appearance	Powder
Colour	Litokol X11: Grey – Litokol X12: White
Custom tariff	38245090
Solid residue	100%
Storage time	12 months inside the original packaging in a dry place.

APPLICATION DATA	
Mixing proportion	Water = 30% (7,5 l. of water for 25 kg sack)
Mixture consistency	Creamy thixotropic mortar
Mixture ageing time	5 minutes
pH of mixture	13
Specific weight of the mixture	1,5
Mixture life	Circa 8 hours
Application	Notched trowel
Application temperatures allowed	from +5°C to +35°C
Waiting time before grouting Wall	Wall: 6 - 8 hours –Floor: 24 hours
Walkable after	24 hours
Commissioning	7 days
Temperature of use	from -30°C to +80°C
Cleaning of equipment	With water with product still fresh. Mechanically on hardened product.
Consumption	8 mm trowel: 3 kg/m ² 10 mm trowel: 3,5 kg/m ² Double coating: 5 kg/m ²

PERFORMANCE	
Initial tensile strength adhesion after 28 days	≥ 1,0 N/mm ²
Tensile strength adhesion after immersion in water	≥1,0 N/mm ²
Tensile strength adhesion after action of heat	≥1,0 N/mm ²
Tensile strength adhesion after freezing/thawing	≥ 1,0 N/mm ²
Open time	≥ 0,5 N/mm ² after 30 minutes
Resistance to alkalis Excellent	Excellent
Resistance to solvents Excellent	Excellent
Resistance to acids Poor	Poor

Although the information in this technical data sheet is the result of our best experience, it is merely indicative.

Each specific case must be subjected to practical preliminary tests by the user who undertakes the responsibility for the final work result.

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LITOKOL[®]
 HI-PERFORMANCE BUILDING PRODUCTS

Litokol S.p.A.
 Via G. Falcone 13/1 - 42048 Rubiera (RE) Italy
 Tel: +39 0522 622811 - Fax: +39 0522 620150
 info@litokol.it www.litokol.it