

Litoelastic EVO FR

HIGH-PERFORMANCE FLEXIBLE REACTIVE ADHESIVE WITH NO VERTICAL SLIP FOR THE INSTALLATION OF ALL TYPES OF CERAMIC AND PORCELAIN TILES ON INTERIOR AND EXTERIOR WALLS AND FLOORS. Low flame-spread product compliant with Directive 2014/90/EU (CE MED) according to the IMO 2010 FTP code for use on ships.



DESCRIPTION

White two-component flexible reactive adhesive, water and solvent free, with high water resistance. Component A consists of synthetic resins, inert fillers with fine granulometry and specific organic additives. Part B consists of an innovative organic catalyst. Once mixed together, the two components form an easily workable, thixotropic and particularly fluid paste that facilitates the work of installers. The product has been expressly formulated to meet the requirements of Part 5 of the IMO FTP Code 2010 as "finishing material for bulkheads and ceilings" for the naval sector.

ADVANTAGES / FEATURES

- Product with very low volatile organic compound (VOC) emission rate. Complies with class EC1^{PLUS} according to the EMICODE protocol and class A+ (Émission dans l'air intérieur - French Regulations)
- Bonding on all types of ceramic, porcelain and mosaic tiles, in interiors on floors and walls
- Allows the installation of ceramic, porcelain and mosaic wall coverings without the need for plastic spacers
- Suitable for installation on heating screeds
- Suitable for overlaying on existing flooring
- Suitable for interior and exterior floor and wall applications, even in severe operating conditions
- The special additives give the product a very fluid texture and facilitate application using a notched trowel
- Reactive adhesive formulated with special raw materials ensuring the product's exceptional ease of application, unique to its kind
- Multipurpose adhesive suitable for bonding different types of coverings such as ceramics, porcelain stoneware, large thin slabs, including those with backing, clinkers, vitreous or ceramic mosaics, natural or reconstituted stones, including moisture-sensitive stones, even on non-traditional substrates such as metal, wood, fibreglass, PVC, linoleum
- Product with high deformation and excellent water-resistance properties
- Suitable for one-step waterproofing and installation of ceramic and porcelain tiles or mosaics in shower enclosures or indoor wet areas
- Product exempt from restrictions for road, sea, air and rail transport

PACKAGING

5 kg buckets (A + B) - 500 kg standard pallet

INTENDED USE

Intended uses	Suitable materials	Suitable substrates
Interiors - exteriors	Ceramic and porcelain tiles	Cement screeds
Floors and walls	Thin laminated stoneware slabs	Self-levellers
Underfloor heating	Recomposed stone made with resin or cement	Skim coats
Façades	Terracotta - Clinker	Existing tiles
Overlaying	Marble – Granite – Stone	Waterproofing systems
Terraces and balconies	Natural stones	Underfloor heating systems
Residential, public, commercial building	Slabs 320x160 cm	Concrete
Ceilings	Large sizes	Gypsum
Tanks, swimming pools, fountains	Porcelain stoneware	Fibre cement slabs
SPA and Hammam	Ceramic and vitreous mosaics	Gypsum and anhydrite
Indoor wet areas (bathrooms, shower enclosures)	Insulating panels	Aerated concrete
Industrial floors	Polystyrene panels	Plasters
Naval	Soundproof panels	Insulating panels
	Elements in cement	Lightweight panels
	Glass wool	Separation membrane
	Rockwool	Wood
	Cork	Metal
	Flexible natural stone sheets	PVC
	Slabs with resin backing	Fibreglass
		Linoleum
		Parquet

For example, it can also be used to install suitable materials in the following areas:

Interior floors in residential and public/commercial settings (pedestrian areas)

Substrates	Longest allowable tile side (cm)
Cement or Litocem/Litocem Pronto-based non-heating screeds	> 120
Cement or Litocem/Litocem Pronto-based heating screeds	> 120
Sulphate-based (anhydrite) non-heating screeds	> 120
Sulphate-based (anhydrite) heating screeds	> 120
Cast-in-place concrete (2)	> 120
Pre-cast concrete	≤ 90
Pre-existing tiled, mosaic, stone, agglomerate substrates (3)	> 120
Pre-existing wood, PVC, resin substrates	> 120
Pre-existing substrates with organic adhesive residue (4)	> 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Plus	> 120
Wood or metal substrates	≤ 90

Interior floors in public/commercial and industrial settings with heavy traffic

Substrates	Longest allowable tile side (cm)
Cement or Litocem/Litocem Pronto-based non-heating screeds	> 120
Cast-in-place concrete (2)	> 120
Pre-cast concrete	≤ 90
Pre-existing tiled, mosaic, stone, agglomerate substrates (3)	> 120
Pre-existing wood, PVC, resin substrates	> 120
Pre-existing substrates with organic adhesive residue (4)	> 120
Substrates waterproofed with Litoproof Plus	> 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Extreme	> 120
Wood or metal substrates	≤ 90

Interior walls in residential, public/commercial and industrial settings

Substrates	Longest allowable tile side (cm)
Lime/cement plaster	> 120
Gypsum-based plaster	> 120
Cast-in-place concrete (2)	> 120
Pre-cast concrete	> 120
Pre-existing tiled, mosaic, stone substrates (3)	> 120
Substrates waterproofed with Hidroflex, Aquamaster, Elastocem, Coverflex, Litoproof Plus	> 120
Fibre cement and cement panels	> 120
Waterproof and non-waterproof gypsum slabs	≤ 90

Elements in autoclaved aerated concrete (6)	≤ 90
Thermal insulated and soundproof panels - Lightweight panels	> 120
Exterior floors in residential, public/commercial and industrial settings	
Substrates	Longest allowable tile side (cm)
Cement or Litozem/Litozem Pronto-based non-heating screeds	> 120
Cast-in-place concrete (2)	> 120
Pre-cast concrete	≤ 90
Pre-existing tiled, mosaic, stone, agglomerate substrates (3)	> 120
Substrates waterproofed with Aquamaster, Elastocem, Coverflex, Litoproof Extreme	> 120
Substrates waterproofed with resins with quartz surface treatment	> 120
Wood or metal substrates	≤ 90
Exterior walls	
Substrates	Longest allowable tile side (cm)
Lime/cement plaster	> 120
Cast-in-place concrete (2)	> 120
Pre-cast concrete	> 120
Pre-existing tiled, mosaic, stone, agglomerate substrates (3)	≤ 120
Substrates waterproofed with Aquamaster, Elastocem, Coverflex	> 120
Fibre cement panels	≤ 90
Wood or metal substrates	> 120

Key

- (1) After treatment with Primer C or Primer X94. Maximum humidity = 0.5%.
- (2) Curing time: minimum 6 months.
- (3) After cleaning and degreasing with Litoscrub EVO.
- (4) After treatment with the adhesion promoter Prepara Fondo EVO.
- (5) After treatment with Primer C or Primer X94 for non-waterproof gypsum.
- (6) After treatment with Primer X94.

INSTALLATION PLANNING

The only way to guarantee the long-lasting performance of ceramic and porcelain tile installations is to properly plan the process. It is therefore advisable to consult the national regulations in force in each country, for example standard UNI 11493 in Italy, which provides all necessary instructions regarding the choice of materials, correct planning, use and installation, so as to ensure all quality, performance and durability standards are safely met.

When installing large tiles or low thickness laminated porcelain stone slabs, we recommend paragraphs 7.13.8 and 7.13.9 of regulation UNI 11493 be carefully read. Moreover, certain producers of thin slabs provide installation manuals indicating the adhesive classes that need to be used depending on the size, characteristics and intended use of the slabs.

Some of the general precautions that need to be followed are listed below as an example.

Substrates

Before installation, check that substrates are clean, free of loose fragments, properly dried and cured, flat and level, and that mechanical strength requirements based on the intended use have been met.

Worksite conditions

Check the suitability of the temperature, humidity, light conditions etc. at the time of the product's application.

Materials

Check that all materials used for tiling (ceramic materials, levelling systems, adhesives, grouts, waterproofing products, etc.) are suitable for the intended use and have been correctly stored.

Expansion joints

Check that the perimeter, expansion, divider and structural elastic joints have been correctly designed and prepared. Divider joints are normally needed for 20/25 m² indoor sections, and 9-15m² outdoor sections. For exteriors, make sure joints are properly waterproofed and sealed.

Back-buttering

For exterior installations, large tiles, floors with intense or heavy traffic, vibrating supports and situations exposed to high temperature fluctuations, the adhesive mortar must be applied to both the substrate and the back of the tiles so as to obtain a solid bed of adhesive without any air bubbles.

Joints

In any type of ceramic and porcelain tiling, suitably sized joints must be created based on the following parameters:

- Type, format and size tolerance of tiles
- thermal expansion coefficients of tiling materials
- mechanical properties of installation materials
- position and trajectory of joints
- mechanical features of substrate
- Ambiente di destinazione e condizioni di esercizio previste

La posa a giunto unito non è ammessa. Eventuali distanziatori in plastica vanno rimossi prima della stuccatura.

PREPARATION OF SUBSTRATES

The substrates must be clean, solid, compact, crack-free, properly cured and without rising damp. If it becomes necessary to create a slope, for example on balconies or footpaths, a levelling layer can be created using suitable levelling products such as Litoplan Smart.

Use of primer:

- Excessively porous and absorbent or powdery substrates must be treated with the consolidating primer Primer C
- Smooth and compact substrates such as smoothed concrete, existing ceramic or agglomerate coverings, must be properly degreased with specific detergents such as Litoscrub EVO
- In the case of anhydrite screeds, check for the presence of a suitable vapour barrier in order to prevent rising damp. Use a carbide method hygrometer to check that the residual humidity is less than 0.5%. The surface must be sanded
- Any cracks must be repaired with Multifondo EVO, sprinkling the fresh surface with sand or dried quartz with granulometry 0.4-1 mm

In any case, the respective technical data sheets must be consulted for correct use of the indicated products.

MIX RATIO

Component A 92.6 parts by weight – Component B 7.4 parts by weight.
The two components are pre-batched in their respective packaging.

PREPARING THE MIX

Pour part B (catalyst) onto part A (paste).
We recommend pouring all the catalyst contained in the bag.
Mix, preferably using an electric drill with mixing paddle at low speed ($\approx 300/\text{min.}$) until a consistent mix is obtained without lumps.
Hand mixing is not recommended.
The two components are pre-batched in their packaging, thus preventing mixing errors.

APPLICATION

Spread the mix onto the substrate using the smooth part of the trowel to create a layer approximately 1 mm thick. Immediately afterwards, apply the product using the notched part of the trowel.
The trowel notch size will depend on the size of the tiles.
A back coverage of 65-70% is nonetheless required for interior installations, and 100% for exterior installations, floors subject to heavy traffic or mechanical stress, and swimming pools.
The tiles must be laid on the adhesive when fresh, firmly pressed to ensure good contact.
The tiles must be installed with joint widths suitable for their size.
Take account of any expansion, perimeter, divider or structural joints.
Leave a space of at least 5 mm near walls or any surface elevations.
In the case of single-step waterproofing and installation of ceramic materials or mosaics in shower enclosures or indoor wet areas, at least 1 mm of product must first be applied to the relevant area using a smooth trowel. After setting (about 24 hours), spread the product using a notched trowel to install the ceramic materials.

FOCUS

Marble, natural and recomposed stones

Materials subject to deformation or stains due to water absorption require a quick-setting (C2F) or reactive (R2) adhesive. Marble and natural stones, even if similar in nature, may have different characteristics. In case of doubt, contact the Litokol S.p.A. Technical Help Service for detailed information or to perform a laboratory test. Natural stone slabs with reinforced backing (resin, mesh, etc.) or specific treatments (for example anti-rising damp, etc.), unless otherwise prescribed by the manufacturer must be tested for compatibility with the adhesive. Before installation, check for any traces of dirt or material deposits on the back of the slabs. If so, these must be removed.

Façades

For exterior wall installations ($H > 3$ m) where tiled surfaces are subject to high levels of tension in expansion joints due to the variations in air temperature and relative humidity and considering the safety risks posed by any eventual detachments, it is recommended to consult the Litokol S.p.A. Technical Help Service in order to precisely define the safest type of installation. In accordance with standard UNI 11493 – point 7.13.7), follow these general instructions: the substrate must guarantee a cohesive tensile strength $\geq 1.0 \text{ N/mm}^2$. For coverings with side > 30 cm the designer must evaluate the potential need to use suitable mechanical fasteners for safety purposes. Always spread the adhesive directly onto the back of the material also.

Underfloor heating

After at least 4 days from installation of the screed developed with Litocem or Litocem Pronto, the heating system can be used with a variable supply water temperature between $+20^\circ\text{C}$ and $+25^\circ\text{C}$, kept constant for at least 3 days. Then set the maximum design temperature and hold it for another 4 days. At the end of this cycle, bring the screed back to ambient temperature and install the covering (see standard EN 1264-4).

Swimming pools

The product can be applied directly on the concrete substrate or Elastocem, Coverflex, Aquamaster and Litoproof Extreme elastic waterproofing membranes.

Following is a list of precautions that must be followed when installing the coverings:

- Respect the concrete curing time (minimum 6 months)

- For underground tanks, adopt preventive measures against possible capillary rising damp, which may cause the detachment of the waterproofing membrane applied inside the tank, for example on drains along the side walls of the excavations or waterproofing constituted by osmotic mortars such as OsmogROUT
- Rectify the surfaces using suitable cementitious mortars such as Litoplan Smart
- Waterproof the internal surfaces of the tank with flexible waterproof membranes resistant to contact with chlorinated water such as Elastocem, Coverflex, Aquamaster and Litoproof Extreme
- It is advisable to perform a hydraulic seal test before installing the covering

Bonding of insulation panels

It can be applied either with a notched trowel or in certain points, nonetheless in accordance with the product's open time.

In any case, the quantity of adhesive applied should be sufficient to ensure the panels are securely bonded.

The slabs must then be installed by applying adequate pressure to obtain a suitable level of adhesion.

GROUTING

Joints can be grouted after approximately 6-8 hours in the case of wall tiles and after 24 hours in the case of floor tiles.

For grouting, it is possible to use the cementitious grouts Stylegrout 0-8, Stylegrout 3-20, Stylegrout Tech or the ready-to-use polymer mortar FillGood EVO, or, for grouting with special mechanical and chemical resistance, the two-component epoxy grouts Starlike[®] EVO or EpoxyElite EVO.

WARNINGS

- Spread the product at temperatures between +10°C and +30°C inclusive
- Do not add lime, cement or other foreign materials to the product
- Respect the mix ratio
- Do not use the product for applications not stated in this technical sheet
- Do not spread the product with thickness greater than 10 mm
- To identify the adhesive most suitable to the requested type of application, it is recommended to consult the document "Synoptic table for choice of adhesives"
- Do not use the product on floors that need to quickly set to light foot traffic
- If in doubt, contact the Litokol S.p.A Technical Help Service.

SAFETY INFORMATION

Consult the product safety data sheet, available on request.

PRODUCT FOR PROFESSIONAL USE

ITEM SPECIFICATION

#In the naval sector, any type of ceramic and porcelain tiles, natural stones, vitreous or ceramic mosaics, resin agglomerates, thin slabs with and without backing, must be installed with a two-component reactive, low flame-spread, high-performance adhesive with no vertical slip in class R2T according to EN 12004, such as Litoelastic EVO FR by Litokol S.p.A.

IDENTIFICATION DATA

Appearance	Component A: thick paste
Appearance	Component B: liquid
Colour	White
Customs code	35069190
Shelf life	24 months in original packaging in a dry place. Protect against frost.

APPLICATION DATA

Mix ratio	Component A: 92.6 parts by weight
Mix ratio	Component B: 7.4 parts by weight
Consistency of mix	Thixotropic paste
Specific gravity of mix	1.70 kg/dm ³
Bonding time	60 minutes
Pot life	Approx. 60 minutes
Applicable thicknesses	From 1 to 10 mm
Application	Notched trowel
Application temperatures	From +10°C to +30°C
Waiting time for grouting	24 hours
Set to light foot traffic	24 hours
Ready for use	7 days - Pools 7 days
Temperature of use	From -40°C to +100°C
How to clean equipment	With water when product is fresh. Mechanically when product has set.
Consumption	3.5 mm trowel: 1.8 kg/m ²
Consumption	6 mm trowel: 2.5 kg/m ²
Consumption	8 mm trowel: 3 kg/m ²
Consumption	10 mm trowel: 3.5 kg/m ²
Consumption	Back-buttering: 5 kg/m ²

PERFORMANCE

Compliance	EN 12004 – ISO 13007	R2 T
Initial shear adhesion strength	≥ 2.0 N/mm ²	EN 12003
Shear adhesion strength after water immersion	≥ 2.0 N/mm ²	EN 12003
Shear adhesion strength after thermal shock	≥ 2.0 N/mm ²	EN 12003
Open time	≥ 0.5 N/mm ² after 50 minutes	EN 1346
Slip	≤ 0.5 mm	EN 1308
Deformability	Highly deformable	
IMO Certification Res. MSC.307(88)-(2010 FTP Code)	Certificate No. MED311618CS/001	Issued by RINA Services S.p.A.
Resistance to humidity	Excellent	
Resistance to alkalis	Excellent	
Resistance to solvents	Excellent	
Resistance to acids	Low	

NOTES

Data detection at temperature +23 °C, R.H. 50% and with no wind. May vary depending on the specific conditions of the installation site.

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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 on 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.

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