EpoxyElite EVO FR *

TWO-COMPONENT ACID-RESISTANT EPOXY GROUT FOR INSTALLATION AND GROUTING OF CERAMIC, PORCELAIN AND MOSAIC TILES WITH JOINTS FROM 1/16 TO 9/16 INCH (1 TO 15 mm) WIDE. PRODUCT WITH LOW FLAME-SPREAD COMPLIANT WITH DIRECTIVE 2014/90/EU (MED) ACCORDING TO STANDARD IMO 2010 FTP Code FOR USE ON SHIPS. FOR INTERIORS AND EXTERIORS.

DESCRIPTION

Two-component acid-resistant epoxy grout.
Part A consists in a mix of epoxy resin, selected inert fillers with fine granulometry, pigments and specific organic additives.
Component B consists in an innovative organic catalyst with lower exposure risks for users.
Once combined, the two components form a creamy non-sag mix, which is suitable for vertical and horizontal application application .
Once set, the product reaches very high performance levels in terms of mechanical strength and chemical resistance.
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

- Unlike other epoxy grouts on the market, the catalyst (Part B) is labeled only as an irritant
- EpoxyElite EVO FR is not corrosive or hazardous for the environment
- User-friendly and very safe product to work with
- Suitable for interior and exterior floor and wall applications, even in severe operating conditions
- Stain-Resistant
- Stable and consistent colors
- Product exempt from transport restrictions via road, sea, air and rail
- The fine aggregates give the grout a particularly smooth and compact surface with a high aesthetic impact and minimum dirt pick-up
- Will not support the spread of fungi and molds
- Product with high mechanical strength, non-absorptive and high chemical resistance
- Reactive grout formulated with specific raw materials with low flame-spread properties, making the product exceptionally easy to apply
- IMO approved for use on ships as a product with low flame-spread
- Product exhibits very low volatile organic compound emissions (VOC). Complies with the most stringent Global Air Quality Regulations.
- EpoxyElite EVO FR does not contain cement, eliminating efflorescence typical of cement based grouts

SUITABLE APPLICATIONS

Suitable application
Interiors and exteriors
Floors and walls
Underfloor heating
Facades
Overlaying
Terraces and balconies
Residential, public, commercial building
Indoor wet areas (bathrooms, shower enclosures)
Tanks, swimming pools, fountains
Spas and saunas
Industrial flooring
Dairy factories, meat processing, food industry
Naval

Materials
Ceramic and porcelain tiles
Single fired
Double fired
Terracotta - Clinker
Marble – Granite – Stone
Natural stones
Porcelain stoneware
Ceramic and vitreous mosaics
Thin laminated stoneware slabs
Large-Format tiles and panels
Slabs 126x63 in (320x160 cm)
Recomposed stone made with resin or cement

PACKAGING

11lb (5 kg) buckets (A + B) - 1,102.3lb (500 kg) standard pallet (100 buckets)

FIELDS OF APPLICATION

Typical applications include:
Suitable for the installation and acid-resistant grouting of ceramic, porcelain and mosaic tiles with joints between 1/32" and 5/8" (1 and 15 mm) wide, on interior and exterior walls and floors.
Suitable for applications with severe operating conditions such as swimming pools, Jacuzzis, floors subject to heavy traffic, and tiles exposed to extreme temperature fluctuations.
Grouting of ceramic and porcelain tiles and mosaics on kitchen worktops in wood.
Bonding and grouting of ceramic, porcelain and mosaic tiles in swimming pools, including surfaces waterproofed with Elastocem, Coverflex or Aquamaster EVO.
Grouting of ceramic and porcelain tiles, mosaics and natural stones installed on metal surfaces for the construction of prefabricated bathrooms.
Also recommended for grouting swimming pools or tanks containing salt or thermal water.
EU Marine Equipment Directive (MED)
Maximum mass per area 21 ± 1.64 oz/ft^2 (6500 ± 500 g/m^2.
As a finishing material for all interior, hidden-from-view or inaccessible surfaces.
If intended for use on bulkheads and ceilings, the product must be applied on any metal substrate having a thickness ≥ 1/4" (0.6 mm).
If intended for use on bridges or horizontal surfaces, the product must be applied on any metal, non-combustible substrate and any material having a low flame-spread.
Test performed in combination with Litoelastic EVO FR, maximum mass per area 13.8 ± 2.8 oz/ft^2 (3500 ± 500 g/m^2).
For further information, please consult the MED declaration of conformity.

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.

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.
Suitable Materials
Check that all materials used for tiling (ceramic materials, leveling 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 22/27 yd^2 (20/25 m^2) indoor sections, and 10/16 yd^2 (9-15m^2) 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
- Intended use and operating conditions

Butt joints are not allowed. Any plastic spacers must be removed before grouting.

PRELIMINARY CHECKS AND JOINT PREPARATION

Check that the adhesive or mortar used for tile bonding is completely set and dry.
Remove any plastic spacers.
The joints must be clean, free from dust and empty for the entire depth of the tiles.
Any traces of adhesive or mortar spilled back into the joints must be removed.
Make sure that the ceramic and porcelain tiles can easily be cleaned and their surface is not absorbent. Certain types of tiles (e.g., polished porcelain stoneware) or natural stones have micro-porosities and surface roughness that can cause surface staining and make cleaning very difficult.
Spot tests should always be performed.

MIX RATIO

Component A: 93.7 % by weight.
Component B: 6.3 % by weight
Note: The two components are pre-batched in their respective packaging.

PREPARING THE MIX

Cut off a corner of the bag containing the catalyst (component B) and pour it onto the paste (component A) in the bottom of the small bucket.
The entire contents of the bag should be emptied out by rolling it up and gradually pressing the bag from the sealed side towards the side that has been cut.
Mix, preferably using an electric drill with mixing paddle at low speed (≈ 150 RPM) until a consistent mix is obtained without lumps.
Scrape the sides and the bottom of the container, using a steel trowel, to make sure that all the parts of the product are catalyzed.
Hand mixing is not recommended.
The two components are proportioned in their packaging, thus preventing mixing errors.
The mix has a pot life of approximately 60 minutes at a temperature of about 73.4°F (+23°C).

APPLICATION

Grouting the tiled surface
Apply the mix in the joints using a special rubber float until saturation, making diagonal movements with respect to the direction of the joints and removing any excess material from the surface of the ceramic covering.
For large surfaces, a single disc machine with abrasion-resistant rubber brusher can be used.
The product's pot life and setting time is strongly dependent on the ambient temperature.
Low temperatures will lengthen the setting time, high temperatures will shorten it.
The ideal temperature for application is between 64°F (+18°C) and 74°F (+23°C).
At temperatures less than 50°F (+10°C), the product is very dense and difficult to apply. The setting time is also considerably lengthened.
Do not add water or solvents to improve pot life.
In hot weather, it is advisable to spread the product on the flooring as quickly as possible so as not to shorten the pot life even further due to the heat of reaction in the container.
Do not use if the temperature is forecast to drop below +10°C (50°F) in the following 24 hours.

CLEANING AND FINISHING

The grouting must be cleaned and finished while the product is still wet and in any case in the shortest possible time.
Take care not to empty the joints or leave halos on the tile surface.
Cleaning and finishing can be performed either manually or using a single disc machine with felt disc pad.
Manual method
First sprinkle clean water over the grouted surface.
Perform initial cleaning using a float fitted with a moistened white scrub pad. Make circular movements in both clockwise and anti-clockwise directions in order to seal the sides of the tiles perfectly and to remove excess grout from the surface of the tiles.
Then wipe a second time with a Sweepex sponge in order to obtain a smooth, closed surface and to remove the product completely from the surface of the tiles, without removing it from the joints, as well as to dry off the excess water. To facilitate the cleaning operation, we recommend using two buckets full of water, one for rinsing the felt pad and sponge, as well as to collect any dirty water, and the other filled with clean water for the final surface cleaning.
Replace the felt pad and sponge when they become impregnated with resin and can no longer be cleaned.
Any resultant halos (haze) or clear product residue can be removed from the surface of the tiles after about 24 hours or after grouting or after the joint has set (depending on the temperature) using the special detergents Litonet EVO (for floors) and Litonet Gel EVO (for walls).
Refer to the technical data sheet for information on how to use them correctly.
Method with single disc machine
After removing any excess grout from the surface, sprinkle plenty of clean water over the grouted surface.
Then start cleaning with the single disc machine with white felt disc pad.
Replace the felt pad when it is completely impregnated with the product.

If necessary, the Litonet EVO detergent can be used to remove any halos after 24 hours, or in any case after the grout sets (depending on the temperature).

LIMITATIONS

- Install the product at temperatures between 50°F and 86°F
- Change the cleaning water frequently
- Change the scrub pad and sponge when they are impregnated with product
- Promptly remove any excess grout from the surface of the tiles because, once set, it can only be mechanically removed, posing serious risks to the end result
- Avoid creating any dust or other polluting materials, generated by nearby simultaneous processes, from coming into contact with the grouting before it has set
- Respect the mix ratio
- D not use the product on damp surfaces or surfaces subject to rising damp
- Do not use the product for widths greater than 9/16" (15 mm)
- Do not add lime, cement or other foreign materials to the product
- Do not walk on the newly grouted surface to avoid staining the floor with epoxy resin
- Do not cover the freshly grouted surface with sheets or other materials to avoid the formation of condensate, which could cause problems in the resin cross-linking. Wait at least 48-72 hours, depending on the temperature, before protecting the surface with breathable materials
- The product cannot be used for grouting Tuscan terracotta tiles or other porous materials and articles, such as cement curbing
- The product cannot be used to grout tanks containing aggressive substances for which only occasional contact is allowed (see chemical resistance table)
- Before grouting natural stones, a spot test must be carried out in order to check for any absorption of the epoxy resin by the stone slabs
- In these cases, it is advisable to perform a spot test and in any case, avoid using grouts with contrasting or very dark colors
- Certain types of tiles (e.g., polished porcelain stoneware) or natural stones, have micro-porosities and surface roughness that can cause surface staining and make cleaning very difficult.
- Given the many types of tiles and mosaics available on the market today, in case of doubt it is recommended to perform a spot grout test in order to determine any incompatibility or cleaning difficulties
- Do not use aggressive detergents during the first 5 days of the grout curing time
- Do not use the product for applications not stated in this technical sheet
- 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 grouted with a two-component reactive, low flame-spread grout in class RG according to EN 13888, such as EpoxyÉlite EVO FR by Litokol S.p.A.

IDENTIFICATION DATA

Appearance	Component A: colored paste
Appearance	Component B: thick liquid
Color	100 Bianco Assoluto 110 Grigio Perla
Customs code	35069190
Shelf life	24 months in original packaging in a dry place. Protect against frost.

APPLICATION DATA

Mix ratio	Component A: 93.7 % by weight
Mix ratio	Component B: 6.3 % by weight
Consistency of mix	Thixotropic paste
Density of mix	3.53lb/in^3 (1.60 kg/dm^3)
Pot life	Approx. 60 minutes
Joint width	From 1/32in to 9/16in (1 to 15 mm)
Application	Grout rubber float
Acceptable application temperatures	From +50°F to +86°F (+10°C to +30°C)
Recommended application temperatures	From +64.4°F to +73.4°F (+18°C to +23°C)
Set to light foot traffic	24 hours
Ready for use	7 days - Pools 7 days
Serviceability Temperatures	From -22°F to +212°F (-30°C to +100°C)
How to clean equipment	With water when product is fresh. Mechanically when product has set.

PERFORMANCE

Compliance	ISO 13007 - EN 13888	RG
Resistance to abrasion	≤ 9.84in^3 (≤ 250 mm^3)	EN 12808-2
Compressive strength after 28 days	≥ 6,520 psi (45.0 N/mm^2)	EN 12808-3
Flexural strength after 28 days	≥ 4,350 psi (30 N/mm^2)	EN 12808-3
Shrinkage	≤ 1.5 mm/m (≤ 0.059in/yd)	EN 12808-4
Water absorption after 240 minutes	≤ 0.1 g (0.0035oz)	EN 12808-5
IMO Certification Res. MSC.307(88)-(2010 FTP Code)	Certificate n° MED/0497/1393	Issued by CSI S.p.A.

CONSUMPTION TABLES

CONSUMPTION AS GROUT lb/ft^2

Joints (inch)

LENGTH	WIDTH	THICK	1/16	1/8	3/16	1/4	5/16	3/8	1/2
in	in	in	0.063	0.125	0.188	0.250	0.313	0.375	0.500
0.50	0.50	0.125	0.25	0.50	0.76	1.01	1.26	1.51	2.01
0.50	0.50	0.250	0.51	1.01	1.51	2.01	2.52	3.02	4.02
0.75	0.75	0.125	0.17	0.34	0.50	0.67	0.84	1.01	1.34
0.75	0.75	0.250	0.34	0.67	1.01	1.34	1.68	2.01	2.68
0.75	0.75	0.500	0.68	1.34	2.02	2.68	3.36	4.02	5.37
1.00	1.00	0.125	0.13	0.25	0.38	0.50	0.63	0.75	1.01
1.00	1.00	0.250	0.25	0.50	0.75	1.01	1.26	1.51	2.01
1.00	1.00	0.500	0.50	1.01	1.51	2.01	2.51	3.02	4.02
1.00	2.00	0.125	0.09	0.19	0.28	0.38	0.47	0.57	0.75
1.00	2.00	0.250	0.19	0.38	0.57	0.75	0.94	1.13	1.51
1.00	2.00	0.500	0.38	0.75	1.13	1.51	1.89	2.26	3.02
1.25	1.25	0.125	0.10	0.20	0.30	0.40	0.50	0.60	0.80
1.25	1.25	0.250	0.20	0.40	0.60	0.80	1.01	1.21	1.61
1.25	1.25	0.500	0.40	0.80	1.21	1.61	2.01	2.41	3.22
1.50	1.25	0.125	0.09	0.18	0.28	0.37	0.46	0.55	0.74
1.50	1.25	0.250	0.18	0.37	0.55	0.74	0.92	1.11	1.48
1.50	1.25	0.500	0.37	0.74	1.11	1.48	1.84	2.21	2.95
1.50	1.50	0.125	0.08	0.17	0.25	0.34	0.42	0.50	0.67
1.50	1.50	0.250	0.17	0.34	0.50	0.67	0.84	1.01	1.34
1.50	1.50	0.500	0.34	0.67	1.01	1.34	1.68	2.01	2.68
2.00	2.00	0.125	0.06	0.13	0.19	0.25	0.31	0.38	0.50
2.00	2.00	0.250	0.13	0.25	0.38	0.50	0.63	0.75	1.01
2.00	2.00	0.500	0.25	0.50	0.75	1.01	1.26	1.51	2.01
2.00	4.00	0.125	0.05	0.09	0.14	0.19	0.24	0.28	0.38
2.00	4.00	0.250	0.09	0.19	0.28	0.38	0.47	0.57	0.75
2.00	4.00	0.500	0.19	0.38	0.57	0.75	0.94	1.13	1.51
2.00	6.00	0.250	0.08	0.17	0.25	0.34	0.42	0.50	0.67
2.00	6.00	0.500	0.17	0.34	0.50	0.67	0.84	1.01	1.34
3.00	6.00	0.250	0.06	0.13	0.19	0.25	0.31	0.38	0.50
3.00	6.00	0.500	0.13	0.25	0.38	0.50	0.63	0.75	1.01
4.00	8.00	0.250	0.05	0.09	0.14	0.19	0.24	0.28	0.38
4.00	12	0.500	0.08	0.17	0.25	0.34	0.42	0.50	0.67
8.00	8.00	0.250	0.03	0.06	0.09	0.13	0.16	0.19	0.25
8.00	12	0.500	0.05	0.10	0.16	0.21	0.26	0.31	0.42
12	12	0.250	0.02	0.04	0.06	0.08	0.10	0.13	0.17
12	24	0.500	0.03	0.06	0.09	0.13	0.16	0.19	0.25
24	24	0.250	0.01	0.02	0.03	0.04	0.05	0.06	0.08

CALCULATION OF CONSUMPTION

Regarding the calculation of consumption for the different tile sizes and joint widths, please refer to the grout calculator available at www.litokol.it and at http://tiledoctor.com/resources/grout-calculator/

CHEMICAL RESISTANCE TABLE

The table provides a summary of the chemical resistance tests performed according to Regulation UNI EN 12808-1
Chemical resistance of ceramic coverings grouted with EpoxyElite EVO FR - Intended use: industrial floors

Group	Name	Conc. %	CONTINUOUS USE				INTERMITTENT USE
			24 hours	7 days	14 days	28 days	
Acids	Acetic acid	2.5	●	●	●	●	●
		5	●	●	●	●	●
	Hydrochloric acid	37	●	●*	●*	●*	●
	Citric acid	10	●	●	●	●	●
	Lactic acid	2.5	●	●	●	●	●
		5	●	●	●	●	●
		10	●	●	●	●	●
	Nitric acid	25	●	●	●	●*	●
		50	●	●	●	●	●
	Pure Oleic acid	pure	●	●	●	●	●
	Sulfuric acid	1.5	●	●	●	●	●
		50	●	●	●	●	●
		96	●	●	●	●	●
	Tartaric acid	10	●	●	●	●	●
Alkalis	Ammonia in solution	25	●	●	●	●	●
	Caustic soda	50	●	●	●	●	●
	Sodium hypochlorite in solution	10	●	●	●	●	●
	Conc. Active IC	10	●	●	●	●	●
	Potassium hydroxide	50	●	●	●	●	●
Saturated solutions at 20°C (+68°F)	Calcium Chloride	pure	●	●	●	●	●
	Sodium Chloride	pure	●	●	●	●	●
	Sugar	pure	●	●	●	●	●
Oils and fuels	Lead-free petrol	pure	●	●	●	●	●
	Diesel	pure	●	●	●	●*	●
	Extra Virgin Olive Oil	pure	●	●	●	●	●
	Lubricant oil	pure	●	●	●	●	●
Enzymatic cleaners	Detergent 1 at 4%	pure	●	●	●	●*	●
	Detergent 2 at 5%	pure	●	●	●	●	●
Solvents	Acetone	pure	●	●	●	●	●
	Ethylene glycol	pure	●	●	●	●	●
	Ethyl alcohol	pure	●*	●*	●*	●*	●*
	Hydrogen peroxide	10 vol	●	●	●	●	●
		25 vol	●	●	●	●	●

KEY

●	RESISTANT
●*	RESISTANT WITH POSSIBLE COLOR VARIATIONS
●	NON-RESISTANT

COLOR TABLE

100 Bianco assoluto

110 Grigio Perla

NOTES

Test performed at temperature +73.4°F (+23 °C), R.H. 50% and with no wind. May vary depending on the specific conditions of the installation site.
The colors and images of the products are intended purely as a guideline and do not necessarily constitute a faithful representation of the originals.

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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 advisable to perform a spot test to check the suitability of the product for the intended use. In any case, users must determine whether or not it is suitable for the intended use and shall assume all associated responsibility.

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