



LITOKOL STARLIKE®

TWO-PART ACID-RESISTANT EPOXY MORTAR FOR INSTALLATION AND GROUTING OF CERAMIC TILES AND MOSAIC WITH JOINT WIDTHS BETWEEN 1 AND 15 mm.

PATENT PRODUCT 05744761.7 B1



UPGRADE

New patented formula UV - resistant attested by Modena and Reggio Emilia University .

DESCRIPTION

Two-part anti-acid epoxy mortar. Part A consists of an epoxy resin mixture, siliceous aggregates and additives.

Part B consists of a mixture of organic catalysts.

The product's main characteristics are:

- Extremely easy application and cleaning, even compared to normal cementitious sealants.
- Stable and uniform colouring for all types of tiles with exclusive colour effects.
- High mechanical strength.
- Waterproof.
- Total absence of cracking or crazing during hardening.
- Excellent chemical resistance.

CLASSIFICATION EN 13888

LITOKOL STARLIKE®: Class RG Reactive grout

CLASSIFICATION EN 12004

LITOKOL STARLIKE®: Class R2T Enhanced reactive adhesive with zero vertical slip

PACKAGING

2.5 kg plastic bucket Standard pallet 367,5 kg
5 kg plastic bucket Standard pallet 450 kg
10 kg plastic bucket Standard pallet 400 kg

FIELDS OF APPLICATION

Suitable for acid-resistant installation and grouting of floor and wall tiles and mosaic in interiors and exteriors with grout joints between 1 and 15 mm wide, such as:

- Floor and wall tiles in general.
- Floor and wall tiles in bathrooms and showers.
- Underfloor heating.
- Kitchen countertops.
- Terraces and balconies.

Suitable for applications where the surfaces are exposed to aggressive chemical substances (see chemical resistance table) such as dairies, abattoirs, pubs, food factories in general.

It is also recommended for grouting swimming pools and tanks, containing thermal or brackish water.

Suitable to the contact with food items, according to D.M of 21.03.1973 (Hygienic discipline of packaging, food containers and tools for the contact with food items and personal use products) and according to the following Decrees of the Health Ministry: 26.04.1993, n.220; 22.07.1998, n.338 ; 28.03.2003, n.123.

A copy of the certificate may be asked to the Litokol Technical Bureau.

The product, therefore, can be used for the grouting of ceramic tiles in environments, submitted to direct contact with food items, such as: workbenches for meat, dairy products or flours, basins for fish breeding, kitchen tables in restaurants, bakeries and pastry shops.

Suitable for installation and grouting of mosaic in swimming pools on the waterproof membranes as Elastocem and Coverflex.

APPLICATION

PRELIMINARY CHECKS AND JOINT PREPARATION

Check that the adhesive or mortar used to fix the tiles has completely hardened and dried.

The joints must be clean, free of powder and empty down to at least 2/3 of the tile thickness.

Any adhesive or mortar that has squeezed up inside the joints must be removed.

MIXING RATIOS

PART A: 100 parts by weight PART B: 8 parts by weight

The two parts are pre-batched in their respective containers

MIX PREPARATION

Cut off a corner from the bag, containing the catalyst (part B), situated in the small bucket, and pour it onto part A (paste).

It is recommended to empty completely the bag with the catalyst, rolling it up towards the cut side.

Mix using an electric drill equipped with mixing paddle until a uniform, lump-free mix is obtained.

Scrape the sides and the bottom of the container, using a steel spatula, to make sure that all the paste is catalyzed.

Hand mixing is not recommended.

The two parts are pre-batched in their packaging, avoiding, this way, all risk of mixing errors.

The paste is workable for approximately 1 hour at a temperature about +23°C.

GROUTING

Introduce the paste into the joints using a special green rubber float (art. 104/G).

For large surfaces, an electric single-brush floor maintenance machine equipped with an abrasion-resistant rubber scraper can be used. Remove excess product using the rubber float.

The product's pot life and hardening time is strongly dependent on the ambient temperature.

The ideal temperature for application is between +18 and +23°C.

In these conditions the product is an easily workable smooth mortar, with a pot life of about 1 hour.

It is ready for foot traffic after 24 hours.

At a temperature of +15°C it takes three days before the surface is ready for foot traffic.

The floor is ready to use and resistant to chemicals after 5 days at a temperature of +23°C and after 10 days at a temperature of +15°C.

At temperatures between +8 and +12°C, the product is very dense and difficult to apply.

The hardening time is also lengthened considerably. Do not add water or solvents to improve workability.

In hot weather it is advisable to apply the product to the floor as quickly as possible so as not to shorten further the pot life due to the reaction heat in the container.

CLEANING AND FINISHING

The grout work must be cleaned and finished while the product is still wet and in any case in the shortest possible time.

Take care not to remove product from the joints or leave stains on the tile surface.

Cleaning and finishing can be performed either manually or using an electric single-brush machine equipped with a felt disc.

Manual method

First sprinkle clean water over the grouted surface. If necessary, perform initial cleaning using a float equipped with a moistened white felt (art. 109/G).

Make circular movements in both clockwise and anticlockwise directions in order to seal perfectly the sides of the tiles and to remove excess grout from the surface of the tiles.

Now perform a second pass with a sweepex sponge (art. 131/G) in order to obtain a smooth, closed surface and to remove completely the product from the surface of the tiles, without removing it from the joints, as well as to dry off the excess of water.

When the felt and sponge are impregnated with resin and can no longer be used, they must be replaced.

Stains or residues of transparent product can be removed after 24 hours or at any rate after grout hardening (the time of hardening depends greatly on the environmental temperature), using the specific cleaners LITONET (for floors) and LITONET GEL (for walls).

For a correct use see the technical data sheet.

Method with single-brush machine

After removing excess grout from the surface, sprinkle plenty of clean water over the grouted surface. Now commence cleaning using the single-brush machine equipped with a felt disc. Replace the felt disc when it is impregnated with product. If necessary, the cleaner LITONET can be used to remove the residues of epoxy film after 24 hours or at any rate after grout hardening (the time of hardening depends greatly on the environmental temperature).

Use of litonet and litonet gel

Spread LITONET or LITONET GEL on the whole surface to be treated with white felt (art. 109/G).

Let it act for about 15-30 minutes.

Then scrub with white felt (art.109/G) or with single-brush machine in case of big surfaces.

Rinse with water and dry immediately with a clean and dry cloth.

Do not wait the evaporation of the rinse water to avoid the formation of stains on the ceramic surface.

USE AS ADHESIVE

Apply to the substrate using a trowel with suitable notch size, then position the tiles and press firmly into place.

CAUTIONS

- If possible, apply the product at temperatures between +18°C and +23°C.
- Do not use at low temperatures or in environment with high humidity, in order to avoid the superficial carbonation that may modify the uniformity of the colour.
- Remove excess product from the tile surface rapidly because once hardened it will have to be removed mechanically, seriously jeopardising the finished result.
- Mix the two components (A+B) correctly.
- While cleaning change frequently the water.
- Change the felt and the sponge when they are impregnated with resin.
- Do not walk on the just grouted surface so as not to stain the floor with epoxy resin.
- Do not cover the grouted surface with length of cloth or other materials to avoid the condensation that may cause the superficial carbonation of the product with the resulting non-homogeneity of the colour.
- Do not use for grouting Tuscan terracotta or other materials and porous manufactured products like cementitious riddles.
- In case of grouting natural stones, it is necessary to execute a preliminary test, in order to verify the absorption of resin by the stone slabs. In case of the resin absorption, the dark stains may form on the sides and on the surface of the slabs and they can't be removed. This problem is usual for marbles of light colours.
- The product must not be used for grouting tanks containing aggressive substances with which only occasional contact is permitted (see chemical resistance table).
- Do not mix the product with water or solvents.
- Do not use for applications not stated on this technical sheet.

IDENTIFICATION DATA

Appearance	Part A: thick coloured paste		
	Part A: thick coloured paste		
Colours available	CLASSIC COLLECTION	Tortora C.490	Mela C.410
	Bianco assoluto C.470	Travertino C.290	Limone C. 430
	Bianco ghiaccio C.270	GLAMOUR COLLECTION	Arancio C.460
	Titanio C.310	Turchese C.400	Rosso oriente C. 450
	Silver C. 220	Artic blu C.390	METALLIC COLLECTION
	Ardesia C.480	Zaffiro C.260	Platinum
	Antracite C.240	Corallo C.230	Shining gold
	Grigio C. 280	Lilla C. 380	Bronze
	Moka C. 420	Ciclamino C. 370	Copper
	Pietra d'Assisi C. 410	Melanzana C.360	Rusty
	Sabbia C.250	Lime C.440	
Customs code	3506 91 00		
Shelf life	24 months in original packaging in dry place		

APPLICATION DATA

Time before grouting	Floor tile installation with normal-setting adhesive: 24 hours Floor tile installation with fast-setting adhesive: 4 hours Floor tile installation with mortar: 7-10 days Wall tile installation with normal-setting adhesive: 6-8 hours Wall tile installation with fast-setting adhesive: 4 hours Wall tile installation with mortar: 2-3 days
Mixing ratios	PART A: 100 parts by weight PART B: 8 parts by weight The two parts are pre-batched in their respective containers
Mix consistency	Creamy
Specific gravity of mix	1,55 kg/l
Pot life	About 1 hour at T=+23°C
Permitted application temperatures	From +12°C a +30°C
Recommended application temper.	From +18°C a +23°C
Walk on time	24 hours at T=+23°C
Ready for use	5 days at T=+23°C
Joint width	From 1 to 15 mm

CONSUMPTION AS GROUT kg/mq

Tile (mm)	Joint (mm)						
	1,5	2	3	4	5	7	10
10x10x4	1,40	1,86					
10x10x10	4,65	6,20					
15x15x4	0,8	1,7					
15x15x10	2,1	4,1					
15x30x8	1,2	2,5					
20x20x3	0,70	0,93	1,40	1,86	2,33	3,26	4,65
23x23x8	1,1	2,2	3,2	4,3	5,4	7,5	10,8
25x25x10	1,2	2,5	3,7	5	6,2	8,7	12,4
50x50x4	0,2	0,5	0,7	1	1,2	1,7	2,5
50x50x10	0,6	1,2	1,9	2,5	3,1	4,3	6,2
100x100x8	0,37	0,50	0,74	0,99	1,24	1,74	2,48
125x240x12	0,34	0,45	0,68	0,91	1,3	1,47	2,26
150x150x6	0,18	0,24	0,36	0,48	0,61	0,85	1,21
150x150x8	0,25	0,33	0,50	0,66	0,83	1,16	1,65
200x200x8	0,19	0,25	0,37	0,50	0,62	0,87	1,24
250x330x8	0,13	0,17	0,26	0,35	0,44	0,61	0,87
300x300x8	0,12	0,17	0,25	0,33	0,41	0,58	0,82
300x600x10	0,12	0,16	0,23	0,31	0,39	0,54	0,78
400x400x10	0,12	0,16	0,23	0,31	0,39	0,54	0,78
450x450x10	0,10	0,14	0,21	0,27	0,34	0,48	0,68
600x600x10	0,08	0,10	0,15	0,20	0,26	0,36	0,51

COMSUPTION AS ADHESIVE

Trowel notc size: 4 mm

Consumption: 1,6 Kg/m2

PERFORMANCE

Shear adhesion strength (EN 12003)	Initial $\geq 2 \text{ N/mm}^2$ After immersion in water $\geq 2 \text{ N/mm}^2$ After thermal shock $\geq 2 \text{ N/mm}^2$
Abrasion resistance (EN 12808-2)	$\leq 250 \text{ mm}^3$
Mechanical flexural strength after 28 days in standard conditions (EN 12808-3)	$\geq 30 \text{ N/mm}^2$
Mechanical compressive strength after 28 days in standard conditions (EN 12808-3)	$\geq 45 \text{ N/mm}^2$
Shrinkage (EN 12808-4)	$\leq 1,5 \text{ mm/m}$
Water absorption after 4 hours (EN 12808-5)	$\leq 0,1 \text{ g}$
Temperature of use	From -20°C to $+100^\circ\text{C}$

SAFETY INFORMATION according to 1907/2006/EC (REACH), Article 31

PART A

reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight = 700)

oxirane, mono[(C12-14-alkyloxy)methyl] derivs

Xi – Irritant

R 36/38 Irritating to eyes and skin.

R 43 May cause sensitisation by skin contact.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S 2 Keep out of the reach of children.

S 24/25 Avoid contact with skin and eyes.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

S 37/39 Wear suitable gloves and eye/face protection.

S 46 If swallowed, seek medical advice immediately and show this container or label.

Contains epoxy constituents. See information supplied by the manufacturer.

PART B

Hazard-determining components of labelling:

3,6-diazaoctanethylenediamin

3,6,9-triazaundecamethylenediamine

Xi – Irritant

R 36/38 Irritating to eyes and skin.

R 43 May cause sensitisation by skin contact.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S 2 Keep out of the reach of children.

S 23 Do not breathe fumes/aerosol.

S 24/25 Avoid contact with skin and eyes.

S 29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

S 37 Wear suitable gloves.

S 46 If swallowed, seek medical advice immediately and show this container or label.

CHEMICAL RESISTANCE TABLE

(the table is a summary of the chemical resistance proof made according to regulation UNI EN 12808)
CHEMICAL RESISTANCE ON 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	●	●	●	●	●
	Oleic Acid	-	●	●	●	●	●
	Sulphuric Acid	1,5	●	●	●	●	●
		50	●	●	●	●	●
		96	●	●	●	●	●
Tannic Acid	10	●	●	●	●	●	
Tartaric Acid	10	●	●	●	●	●	
Oxalic Acid	10	●	●	●	●	●	
Alkalis	Ammonia in solution	25	●	●	●	●	●
	Caustic Soda	50	●	●	●	●	●
	Sodium Hypochlorite Conc. Cl active	>10	●	●	●	●	●
	Caustic Potash	50	●	●	●	●	●
	Sodium Bisulphite	10	●	●	●	●	●
Concentrated solutions 20°C	Iposulphite Sodium		●	●	●	●	●
	Calcium Chloride		●	●	●	●	●
	Sodium Chloride		●	●	●	●	●
	Ferric Chloride		●	●	●	●	●
	Sugar		●	●	●	●	●
Oils and fuels	Petrol, Fuels		●	●	●	●	●
	Turpentine		●	●	●	●	●
	Gas Oil		●	●	●	●	●
	Olive Oil		●	●	●	●	●
	Lube Oil		●	●	●	●	●
Solvents	Acetone		●	●	●	●	●
	Ethylene Glycol		●	●	●	●	●
	Glycerine		●	●	●	●	●
	Ethyl Alcohol		●	●	●	●	●
	Solvent Petrol		●	●	●	●	●
	Peroxide Water	10	●	●	●	●	●
25		●	●	●	●	●	

KEY

- EXCELLENT RESISTANCE
- GOOD RESISTANCE
- POOR RESISTANCE

Although the information provided on this technical sheet is accurate to the best of our knowledge and experience, it is intended purely as a guideline. The user must carry out preliminary practical tests for each specific job and is solely responsible for the final result.

Sheet N°308

Rev. n. 6

Date: August 2011

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