Starlike® Pro

Technical specifications

Science-based decorative epoxy gel (6th Gen) enhanced with polymerised coloured quartz, waterproof, stain-resistant, UV-resistant, for the installation and grouting of joints from 1 to 20 mm with high hygiene performance, and for all types of mosaics, tiles, porcelain stoneware, large slabs, marble, granite and natural stones. The Original

Product description

Decorative epoxy gel (6th generation) for the grouting of joints from 1 to 20 mm for all types of mosaics, tiles, porcelain stoneware, marble, granite and natural stones.
Patented formula enhanced with coloured glass microspheres with level 3 technology, which guarantees solidity, uniformity and total colour stability.
For waterproof, stain-resistant and UV-resistant joints with extreme chemical-mechanical resistance and thermal shock resistance.
Designed for high ease of application and, thanks to latest-generation features, the mixture is extremely creamy, lightweight, super easy to spread, and easy to clean.

Classified RG - EN 13888 and R2 T - EN 12004

Patented Gel formula

Starlike® Pro is a Litokol invention with high innovative content protected by Patents No. 102006901436703 - No. 102028000005366

Part A

Blend of epoxy resins of different molecular weights under proprietary licence
High density of coloured polymerised quartz microspheres ~200 million/kg
High concentration of recycled glass microbeads ~85 million/kg
Ultra-fine granulometry - 60-200 µm range
Smart rheological stabilisers and plasticisers

Part B
Latest-generation non-corrosive polymeric linker

Starlike® Pro embodies Litokol's continuous scientific progress.
It is designed with innovative raw materials to improve the installation experience and safety, and to reduce the environmental impact.

Engineered with

Level 3 Color Quartz Microsphere® technology
Level 2 Recycled Crystal Microsphere® technology
Zherorisk® EpoxyGel technology
Defender Anti-Microbial technology

Colour technology

Contains 200 million quartz microspheres per kg
Microsphere diameter from 60 to 200 µm
Polymeric microsphere covering
Wet suspension sphere pigmentation

Contains 85 million glass microbeads per kg
Microsphere diameter from 60 to 180 µm
Recycled microspheres

Performance Gel

Ultra-high-performance decorative epoxy gel
Hyper-smooth application thanks to exclusive, perfectly spherical, high-tech quartz microspheres, developed with exclusive Litokol technology and subjected to a proprietary advanced engineering process, classified as “Quarzo Plus” with a maximum sphericity index (~1)
Easy and fast cleaning - Starlike® Pro is pigmented exclusively with a blend of Litokol quartz microspheres and very pure glass microbeads, and contains none of the chemical pigments found in common epoxy grouts
Long-lasting colours with high chromatic depth
Stable and consistent colours - high concentration of coloured quartz microspheres
Full and deep colours - mixture enriched with glass microbeads
Smooth, silky joints - ultra-fine granulometry coloured quartz microspheres (60-200 µm)
High adhesion to tile edges
Waterproof and shrinkage-free
Antimicrobial and mould-resistant certified
Maintains a healthy indoor environment
Suitable for direct contact with food and drinking water
Superior resistance to stains
Superior resistance to UV rays
Superior resistance to acids and alkalis
Extended workability time > 90 min

Chemistry + intelligent

Oxirane-free. Does not contain C12-C14 (Oxirane, mono C12-14-alkyloxy methyl derivs)
Not dangerous for the applicator
Not dangerous for the environment
Not dangerous for transport - AFR Free
Non-corrosive and non-toxic
Complies with Standard ISO22196 - Antimicrobial protection: prevents the growth of bacteria and moulds on the surface.
Complies with HACCP/reg. EC 852/2004 for the hygiene of foodstuffs
Contains recycled glass microspheres (>10%)

Certifications

EN 13888 - Grout
EN 12004 - Adhesive
ISO 13007
ANSI 118.3
EC1 Plus Gev Emicode
A+ Emissions dans l'air interieurs
EPD Environmental Product Declaration
EN 1186-3:2003- HACCP
ISO 22196

Starlike® Pro and the Environment

LCA results for Global Warming Potential – Greenhouse Gas GWP-GHG

Impact category	Unit	A1-A3	C1	C2	C3	C4	D
Climate change GWP-GHG	kg CO2 eq	2,14	4.38 10^{-3}	1.18 10^{-2}	0	5.00 10^{-2}	-2.12 10^{-2}

Materials

Ceramic and vitreous mosaics
Porcelain stoneware
Large sizes
Laminated stoneware slabs
Marble – Granite – Stone
Natural stones
Ceramic and porcelain tiles
Terracotta - Clinker
Recomposed stone made with resin or cement

Substrates

Screeds
Self-levellers
Plasters
Gypsum
Gypsum and anhydrite
Existing tiles
Underfloor heating systems
Waterproofing systems

Separation membrane
Metal
Wood
Aerated concrete
Fibre cement slabs
Concrete

Uses

Grout - adhesive
Floors - walls
Interiors - exteriors
Underfloor heating systems
Façades
Swimming pools - fountains
SPA - Hammam
Terraces - balconies
Indoor wet areas - bathrooms and showers
Exclusive locations
Industrial floors
Dairy factories, slaughterhouses, food industry
Residential, public, commercial and street furniture

Product specifications

Appearance	Part A: Coloured Gel
Appearance	Part B: Polymeric liquid
Colour	See colour chart - The Colours of the Earth
Responsible Packaging	2.5 kg and 5 kg post-consumer recycled plastic buckets (Monopack A + B)
Shelf life	36 months in original packaging in a dry place. Keep away from frost
Customs code	35069190

Technical specifications

Compliance	**ANSI A118.3**	
Cleanability with water	The material must be spreadable and water cleanable at 80 min	5.1
Initial set time	≥ 2 h	5.2
Final set time	≤ 7 days to reach at least 90% of the performance indicated by the manufacturer	5.2
Shrinkage	≤ 0.25 %	5.3
Slump in vertical joints	No obvious change	5.4
Initial tensile adhesion strength	≥ 1000 psi	5.5
Resistance to compression after 7 days	≥ 3500 psi	5.6
Flexural strength after 7 days	≥ 1000 psi	5.7
Resistance after thermal shock	≥ 500 psi	5.8

Compliance	**EN 13888 – ISO 13007**	**RG**
Resistance to abrasion	≤ 250 mm^3	EN 12808-2
Compressive strength after 28 days	≥ 45.0 N/mm^2	EN 12808-3
Flexural strength after 28 days	≥ 30 N/mm^2	EN 12808-3
Shrinkage	≤ 1.5 mm/m	EN 12808-4
Water absorption after 240 minutes	≤ 0.1 g	EN 12808-5

Compliance	**EN 12004 – ISO 13007**	**R2 T**
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 20 min	EN 1346
Initial shear adhesion strength	≥ 2.0 N/mm^2	EN 12003
Slip	≤ 0.5 mm	EN 1308
Chemical resistance	See Table	EN 12808-1

Specifications for application

Mix ratio	Part A: 93.7 parts by weight
Mix ratio	Part B: 6.3 parts by weight
Consistency of mix	Epoxy gel
Specific gravity of mix	1.55 kg/dm
Pot life	> 90 min
Joint width	From 1 to 20 mm
Application	Starlike® Pro trowel
Application temperatures	From +10°C to +30°C
Waiting time for grouting	24 h
Ready for light foot traffic	24 h
Ready for use	5 days - Swimming pools 7 days
Temperature of use	From -20°C to +100°C
How to clean equipment	With water when product is fresh. Mechanically when product has set.
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.
Use as adhesive	
Applicable thicknesses	From 1 to 10 mm
Open time	> 90 min
Bonding time	> 90 min
Waiting time for grouting	Wall: immediate – Floor: 24 h
Application	Notched trowel suitable for the format and for the substrate
Consumption	2 mm trowel: 1.1 kg/m^2
Consumption	3.5 mm trowel: 1.6 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

Calculation of consumption

Formula for calculation of consumption: (A+B)/(AxB) x C x D x 1.55 = kg/m^2

A = tile length (in mm)
B = tile width (in mm)
C = tile width (in mm)
D = joint width (in mm)

In regards to the calculation of consumption for the different tile sizes and joint widths, refer to the product calculator available at www.litokol.com

Substrate preparation

Use as grout

Check that the adhesive Gel has set completely and is dry.
The joints must be dry, clean, free from dust and empty for at least 2/3 of the tile thickness.
Any adhesive that overflows during installation must be removed while still fresh.

Use as adhesive

In accordance with Standard UNI 11493-1, the substrates must be mechanically resistant and free of friable parts, and clear of grease, oils, paints, waxes and rising damp.

Cement plasters must have a curing time of at least one week per cm of thickness.

Levelling of non-planar substrates with the latest-generation anti-fracture levelling compounds HydroLevel® 1-30 and X-Level® 0-10.

Preparing the mixture

To fully appreciate the superior smoothness and thixotropy of the innovative epoxy Gel mixture, mix the product according to the indicated mixing ratio.

Cut off a corner of the bag containing the polymeric catalyst - part B - and pour it into the container of part A.

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.

Polymerisation starts when the epoxy part is mixed with the hardener: this reaction creates new chemical bonds, generating the three-dimensional network which is the technological core of the solid and flexible structure of the epoxy Gel.

This step is crucial, as a non-homogeneous mixture could compromise its final properties such as hardness, and thermal and chemical resistance.

For this reason, it is recommended to mix with a low-speed electric mixer (approx. 300 rpm) until a creamy, homogeneous, lump-free mixture is obtained; this also helps to avoid overheating the mass, which would reduce the workability times.

Scrape the sides and the bottom of the container using a trowel or float to retrieve any uncatalysed product residues.

Briefly remix to obtain the easy-to-apply Gel consistency for both floor and wall applications.

Hand mixing is not recommended.

Application

Use as plaster

Spread with the special Starlike® grout rubber float, taking care to fill the joints completely with diagonal movements with respect to the direction of the joints, and remove any excess material from the surface.

The ambient temperature affects the time for workability, curing and readiness: low temperatures extend it, high temperatures shorten it.

Do not apply if the temperature is forecast to drop below +10°C in the following 24 hours.

Use as adhesive

To ensure the perfect adhesion of the Gel to the substrate, apply a scratch coat of the mixture using the smooth side of the trowel, and then straight after apply the desired thickness with the notched side.

The trowel notch size must be chosen according to the format of the material to be installed and the substrate.

In accordance with Standard UNI 11493-1, use the back-buttering technique, applying the Gel also on the back of the tiles to ensure complete wetting during installation outdoors or in particularly stressed areas.

To ensure the complete transfer of the Gel to the back of the tiles, they must be laid on the still-fresh adhesive with adequate pressure.

The open time in standard temperature and humidity conditions is approximately 90 minutes.
Very warm or windy climates, or particularly absorbent substrates may drastically reduce it to a few minutes. It is therefore recommended to regularly check that the adhesive has not skinned over.
In accordance with Standard UNIT 11493-1, the tiles must be installed with joint widths suitable for their size.
Respect any control or structural joints and create adequate expansion, separation and perimeter joints.

Special Applications

Starlike® Finishes
Starlike® Pro is designed to be enriched with Starlike® Finishes to achieve surprising aesthetic effects: blends of coloured glitter, metallic effects with pearlescent mica and Night Vision with photoluminescent technology will make the grouted surfaces unique and exclusive.
Add the pre-batched packet of Starlike® Finishes, depending on the format, after mixing the catalyst -part B- and mix carefully at low speed until a homogeneous mixture is achieved.
For indoor use only.
Grouting of marble and natural stone
For grouting stone materials, polished porcelain stoneware, and on porous surfaces, always perform preliminary tests.

Cleaning and finishing

The surfaces must be cleaned and the grouting finished while the product is still fresh, taking care not to empty the joints and without leaving stains.
Wet the grouted surface with clean water and emulsify with a white Starlike® Pro felt, using circular movements to perfectly fill the joints and remove excess product from the surface.
Then wipe a second time with a damp Pro Starlike® sweepex sponge to obtain a smooth and compact surface, completely removing the product from the tiles, without removing it from the joints, and drying the excess water.
To facilitate the cleaning operation, it is advisable to use two water basins simultaneously: one for rinsing the felt pad and sponge, and the other for the final surface cleaning with clean water.
Replace the felt pad and sponge when they become soaked with resin and can no longer be cleaned.
Any stains or product residues can be easily removed from the tiled surface after 24 hours, but no later than 48 hours, using the specific detergents: Starlike® Care (for floors) and Starlike® Wall Care (for walls).
More stubborn marks can be removed with Starlike® Care Pro epoxy resin cleaning gel, even several days later, while older product residues should be removed with Starlike® Remover epoxy residue cleaning gel.

Sealing and maintenance

For the elastic sealing of expansion, control and perimeter joints, use sealants from the Pixel 3D line.
For the correct maintenance and protection of the surfaces use specific Litokol detergents from the X-Cleaner line.

Warnings

Due to the qualitative differences in worldwide ceramic production (e.g., polished porcelain stoneware), the many morphological types of marble and natural stones, and the various mixtures used in the engineering of mosaics found on international markets, it is advisable to perform a preliminary grouting test to determine any incompatibilities or cleaning difficulties
Do not add water, lime, solvents or other foreign materials to the product
Do not walk on the newly grouted surface to avoid staining the floor with epoxy resin
Promptly remove any processing residues from the grouted surface, as once hardened, the product can only be removed mechanically
When the grouting is not yet hardened, avoid concurrent work that could produce dust, as this may compromise the final aesthetic quality
Protect against direct sunlight or strong air currents for the first 12 hours after application
Do not directly cover the freshly grouted surface with sheets or other materials to avoid condensation, which may compromise the complete polymerisation of the product. Wait at least 48-72 hours, depending on the temperature, before protecting the surface with breathable materials
In the case of application at temperatures close to +10°C, the addition of EpoxyGel booster is recommended. (Dosage: 1 pack of EpoxyGel booster of 50 gr x 2.5 Kg Starlike® Pro. 2 packs of EpoxyGel booster of 50 gr. x 5 Kg Starlike® Pro)
Do not use the product for applications not indicated in this Technical Data Sheet
For further information, contact the Litokol Technical Help Service at +39-0522-622811 or via customercare@litokol.com

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 Starlike® Pro - Intended use: industrial floors

Group	Name	Conc. %	Service Continuous			Intermittent use
			24 hours	7 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	●	●	●	●
	Sulphuric acid	1.5	●	●	●	●
		50	●	●	●	●
		96	●	●	●	●
	Tartaric acid	10	●	●	●	●
Alkalis	Ammonia in solution	25	●	●	●	●
	Caustic soda	50	●	●	●	●
	Sodium hypochlorite in solution	10	●	●	●	●
	Conc. Active Cl	10	●	●	●	●
	Potassium hydroxide	50	●	●	●	●
Saturated solutions at 20°C	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 detergents	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	●	●	●	●

●	Resistant
●*	Resistant with possible colour variations
●	Non-resistant

Colour chart

The Colours of the Earth - Selection of Colours curated by Piero Lissoni

02 Sabbia Bianca	35 Arenaria
04 Pomice di Lipari	27 Caolino
20 Limo Del Nilo	28 Dune
06 Nebbia	21 Calce di Marrakech
07 Cenere	29 Terra di Borgogna
08 Terra di Bruma	31 Terra Fumicata
10 Ardesia	30 Argilla di Cipro
12 Nero Antico	22 Terra di Volterra
13 Argilla Bianca	24 Argilla Bruciata
26 Bianco di Spagna	34 Terracotta

The colours are for indicative purposes only.

Information regarding safety

For the safe use of our products, refer to the latest version of the Safety Data Sheet, available on the website www.litokol.com
PRODUCT FOR PROFESSIONAL USE

Legal notes

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 for 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.
Always refer to the latest updated version of the Technical Data Sheet, available on the website www.litokol.com

Item specification

The installation and grouting from 1 to 20 mm, both indoors and outdoors, in accordance with Standards UNI 11493-1 and 11714-1, of floors and walls made from all types of ceramics—porcelain stoneware, single-fired, double-fired, clinker, and terracotta—stone material, and mosaics, will be carried out using a sixth-generation decorative epoxy Gel, with a patented formula enhanced with exclusive Level 3 technology of polymerised coloured quartz microspheres, ensuring solidity, uniformity and total colour stability for waterproof, stain-resistant and UV-resistant joints, with extreme chemical-mechanical resistance and thermal shock resistance, classified as RG according to Standard EN 13888 and R2T according to Standard EN 12004: Starlike® Pro by Litokol Lab SpA.

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