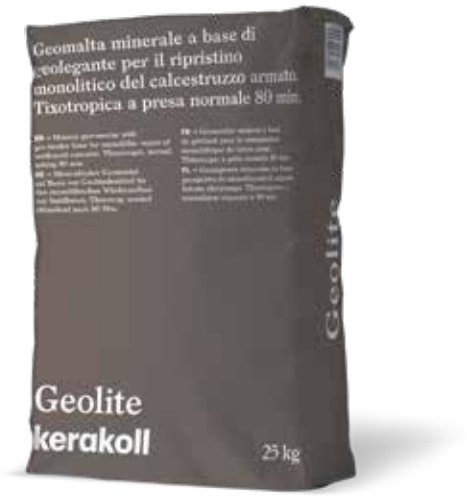
Geolite

Mineral geo-mortar with geo-binder base for monolithic repair of reinforced concrete. Thixotropic, normal setting 80 min.

Geolite is a thixotropic geo-mortar for passivating, repairing, finishing and protecting structures in reinforced concrete, anchoring and fixing metal elements. Inorganic mineral matrix in combination with steel sheets in certified Geosteel SRG structural strengthening systems.



1. **Thixotropic, class R4**
2. **Normal setting 80 min.**
3. **Thicknesses from 2 to 40 mm in a single coat**
4. **Based on geo-binder**
5. **For naturally stable, monolithic repairs**
6. **Modular setting times**
7. **Inorganic mineral matrix in certified Geosteel SRG systems**

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Areas of application

→ Intended use:
- Passivation, localised and generalised repair, finishing and monolithic protection of reinforced concrete structures of any nature and size
- Specific for medium or large size operations, machine application, finishing of large surface areas
- Precision fastening and structural anchoring of sub-plates, tie-rods, bars, plates, machinery on reinforced concrete
- Inorganic mineral matrix in certified Geosteel SRG systems for the strengthening of reinforced concrete elements

Instructions for use

→ Preparation of substrates
Before applying Geolite it is necessary to:
- thoroughly remove all weakened concrete until a solid, resistant substrate is obtained; roughen it by mechanical scarification or hydro-demolition to a depth of ≥ 5 mm, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates
- remove the rust from the reinforcing bars, which must be cleaned by brushing (manual or mechanical) or sandblasting;
- clean the treated substrate using compressed air or a high pressure washer;
- saturate with water until the substrate is saturated yet with no excess water on the surface. Alternatively on horizontal concrete surfaces, apply Primer Uni on a dry substrate in order to ensure regular absorption and promote the natural crystallisation of the geo-mortar.

Check that the resistance class of the supporting concrete is suitable.
In case of thick patched layers and on large surface areas, provide a reinforcing welded mesh anchored to the substrate.

→ Preparation
Prepare Geolite by mixing 25 kg of powder with the amount of water indicated on the packaging (we advise using the whole bag).
The mixture can be prepared in:
- a mixer, mixing until a smooth, lump-free mortar is obtained;
- a suitable mixing pump;
- a mortar mixer or drill-type mixing device with a low-rev agitator.

→ Application
- In localised/generalised repair work in which Geolite is applied in thicknesses from 2 mm to 40 mm (maximum per layer), apply the mortar by hand using a trowel or a mortar spray machine.
- To make a protective finishing, Geolite can be applied manually (with a steel spreader) or by machine in a minimum thickness of 2 mm after the surface has been roughened to a depth of 1 – 2 mm.
- For grouting of bars, fill the hole previously made with Geolite by extruding the material with a special gun and insert the bar with a rotating movement.
- Mechanized application: it is recommended to use a continuous cycle pump equipped with a stator suitable for the maximum grain size of the product (0.5 mm) or an indirect mixing pump.
- Application of Geosteel SRG systems: apply the first layer of Geolite by hand using a flat spreader and trowel, ensuring that enough material is applied to the adequately prepared substrate in order to incorporate the strengthening sheet and to level any irregularities. Apply the steel sheet using a suitable flat spreader to press down hard enough to ensure the correct impregnation and eliminate any air bubbles, working in a parallel direction to the fibres and to the centre of the section towards the edge. Apply the second coat until the sheet is completely covered.

Allow to cure during the first 24 hrs.

→ Cleaning
Residual traces of Geolite can be removed from tools and machines using water before the product hardens.

Special notes

→ Repair of industrial flooring and/or flat concrete surfaces

1. Detailed analysis of damage, deterioration and cracks.
2. Removal of the weakened concrete by scarification down to the sound part. The surface must be prepared to a ≥ 5 mm roughness, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates.
3. Sealing of any cracks by injection with Epofill.
4. Removal of the dust and concrete residue using compressed air or washing with pressurised water.
5. Spray application of Primer Uni surface preparation coat onto the clean, dry surface.
6. Reconstruction of the section based on the following guidelines:
   a. for thin patched layers between 5 and 35 mm thick, add suitable short fibres;
   b. for medium thickness patched layers between 35 and 60 mm, insertion of galvanised, electro-welded mesh Ø 5 mm, mesh size approx.10x10 mm, positioned in the upper third of the layer thickness and anchored with steel rods bent into an “L” shape and grouted to the substrate using Epofill or Epofix for a minimum depth of 60 mm.
7. Always allow the surfaces to cure for at least 24 hrs.
8. Creation of expansion joints using a diamond coated circular saw, preferably in square areas that are not larger than 16-20 m². Always respect the existing joints in the floor.
9. For surface finishes with an even appearance that are also slip-resistant and non-slip, the surface must be shot peened at least 7 days after casting.
10. This type of floor is suitable for surface treatment with specific resins from the Kerakoll Factory range, to give higher levels of chemical and mechanical resistance.

The indications provided are based on a knowledge of the problems relating to floors and on the experience gained in this sector both regarding products and applications.
The Designer and Constructor will be responsible for selecting the best solution, which may involve indications other than those provided in the technical description, based also on the state of preservation of the surfaces and the subsequent conditions of use.

N.B.

1. On large surface areas, use special mixing machines, so that the product can be applied continuously without waiting times or pauses.
2. It is always recommended that the amounts of suitable short fibres suggested in the respective technical data sheets be added to mortars that are used to repair or create flooring, to improve ductility.
3. Comply with the times indicated in the product technical data sheet before returning the floors to use.
4. Carry out test samples to assess site organisation as regards laying, and the effectiveness of the option selected.
5. Perform contraction joints after at least 12 hours and no later than 24 hours.

Certificates and marks

CE EN 1504-2(C) · CE EN 1504-3 · CE EN 1504-6 · CE EN 1504-7 · R4 CC WET WAY TESTED EN 1504-3 · R4 PCC DRY WAY TESTED EN 1504-3 · MC METHOD 2.2 EN 1504-2 · CR METHOD 3.1 - 3.3 EN 1504-3 · SS METHOD 4.2 - 4.4 EN 1504-3/6 · RP METHOD 7.1 - 7.2 EN 1504-3 · IR METHOD 8.2 EN 1504-2 · CA METHOD 11.2 EN 1504-7 · PASSES CARBONATION RESISTANCE EN 1504-3

ETA N° 19/0325 DOP n° 0480 DOP n° 0481

CE-marked in combination with Geosteel G600 and G1200 for concrete structures

BENOR

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ÉMISSIONS DANS L'AIR INTÉRIEUR A+ A+ A B C

** Émission dans l'air intérieur Information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions).*

Abstract

Supply and laying of a certified, thixotropic, normal-setting (80 min.) mineral geo-mortar, based on geo-binder, with very low petrochemical polymer content and free of organic fibres, specific for the passivation, repair, finishing and guaranteed, long-lasting, monolithic protection of concrete structures and grouting of bars, such as Geolite by Kerakoll Spa. Specific for the localised or generalised centimetre-thick monolithic repair of damaged or deteriorated sections of reinforced concrete and simultaneous treatment of reinforcing bars and millimetre-thick protective finishing of surfaces by application with a trowel or mortar spray machine, after adequate preparation and wetting of the substrates until fully saturated. CE-marked and compliant with the performance requirements of standards EN 1504-7 for the passivation of reinforcing bars, EN 1504-3, Class R4, CC and PCC type, for volumetric reconstruction and finishing, EN 1504-2 for the protection of surfaces and EN 1504-6 for the anchoring with swelling effect of steel reinforcement bars; according to principles 2, 3, 4, 5, 7, 8 and 11 as defined by standard EN 1504-9.

Geosteel SRG – Geolite & Geosteel G system: supply and laying of certified structural strengthening of reinforced concrete by bonding ultra-high strength galvanised steel fibre sheets such as Geosteel G by Kerakoll Spa, impregnated with an inorganic mineral matrix such as Geolite by Kerakoll Spa. CE-marked and compliant with the performance requirements of Standard EN 1504-7 for the passivation of reinforcing bars, EN 1504-3, Class R4, CC and PCC type, for volumetric reconstruction and finishing, EN 1504-2 for the protection of surfaces and EN 1504-6 for the anchoring with swelling effect of steel reinforcement bars.

Technical Data compliant with Kerakoll Quality Standard		
Appearance	powder	
Apparent volumetric mass	≈ 1260 kg/m³	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 0.5 mm	EN 12192-1
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 5.1 l / 1 x 25 kg bag	
Flow of the mixture	160 – 180 mm	EN 13395-1
Density of the mixture	≈ 2050 kg/m³	
pH of the mixture	≥ 12.5	
Start/end of setting	> 70 – 80 min. (> 200 – 220 min. at +5 °C) – (> 50 – 60 min. at +30 °C)	
Temperature range for application	from +5 °C to +40 °C	
Minimum thickness	2 mm	
Maximum thickness per layer	40 mm	
Coverage	≈ 17 kg/m² per cm of thickness	

Values taken at +21 °C, 60% R.H. and no ventilation. Data may vary depending on specific conditions at the building site.

Performance			
VOC Indoor Air Quality (IAQ) - Volatile organic compound emissions			
Conformity	EC 1 plus GEV-Emicode		GEV Certified 3539/11.01.02
HIGH-TECH			
Performance characteristic	**Test Method**	**Requirements of standard EN 1504-7**	**Performance Geolite**
Corrosion protection	EN 15183	no corrosion	value exceeded
Shear adhesion	EN 15184	≥ 80% of the value of the uncovered bar	value exceeded
	Test Method	**Requirements of standard EN 1504-3, class R4**	**Performance in CC and PCC conditions**
Compressive strength (N/mm²):	EN 12190		
- 24 hrs			> 20
- 7 days			> 35
- 28 days		≥ 45	> 50
Flexural tensile strength (N/mm²):	EN 196-1	None	
- 24 hrs			> 5
- 7 days			> 7
- 28 days			> 8
Adhesive bond (28 days)	EN 1542	≥ 2 N/mm²	> 2 N/mm²
Resistance to carbonation	EN 13295	d_k ≤ reference concrete [MC (0.45)]	value exceeded
Modulus of elasticity under compression:	EN 13412	≥ 20 GPa (28 days)	
- in CC			22 GPa
- in PCC			20 GPa
Thermal compatibility with freeze/thaw cycles with de-icing salts	EN 13687-1	bond strength after 50 cycles ≥ 2 N/mm²	> 2 N/mm²
Capillary absorption	EN 13057	≤ 0.5 $kg \cdot m^{-2} \cdot h^{-0,5}$	< 0.5 $kg \cdot m^{-2} \cdot h^{-0,5}$
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%
Reaction to fire	EN 13501-1	Euroclass	A1

Performance			
	Test Method	**Requirements of standard EN 1504-2 (C)**	**Performance Geolite**
Permeability to water vapour	EN ISO 7783-2	Reference class	class I: S_D < 5 m
Capillary absorption and water permeability	EN 1062-3	w < 0.1 kg·m^{-2}·hrs$^{-0.5}$	w < 0.1 kg·m^{-2}·hrs$^{-0.5}$
Bond strength by pull off	EN 1542	≥ 2 N/mm²	> 2 N/mm²
Linear shrinkage	EN 12617-1	≤ 0.3%	< 0.3%
Thermal expansion coefficient	EN 1770	α_T ≤ 30·10^{-6}·k^{-1}	α_T < 30·10^{-6}·k^{-1}
Adhesion following thermal shock	EN 13687-2	≥ 2 MPa	> 2 MPa
Resistance to impact	EN ISO 6272-1	Reference class	Class III : ≥ 20 Nm
Hazardous substances		compliant with point 5.4	

	Test Method	**Requirements of standard EN 1504-6**	**Performance Geolite**
Pull-out strength of steel rebars (movement in mm in relation to a 75 kN load)	EN 1881	≤ 0.6 mm	< 0.6 mm
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%
Hazardous substances		compliant with point 5.4	
Aggregate performance characteristic	**Test Method**	**Requirements of standard UNI 8520-22**	**Geolite aggregate performance**
Alkali-aggregates reaction	UNI 11504	reactivity class	NR (non-reactive)

Warning

→ Abide by any standards and national regulations
→ store the product away from any sources of humidity and out of direct sunlight
→ use at temperatures between +5 °C and +40 °C
→ do not add binders or additives to the mixture
→ do not apply to dirty, loose and flaking surfaces
→ do not apply on gypsum, metal or wood
→ following application, protect from direct sunlight and wind
→ allow the product to cure during the first 24 hours
→ if necessary, ask for the safety data sheet
→ for any other issues, contact the Kerakoll Worldwide Global Service +39 0536 811 516 - globalservice@kerakoll.com

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