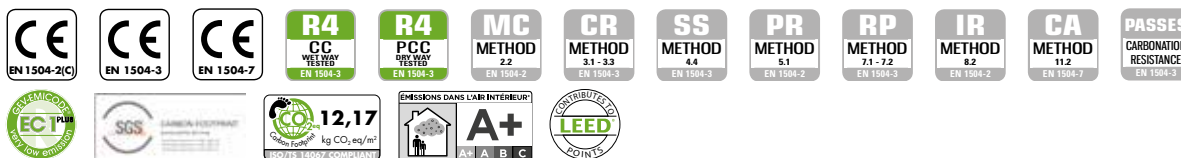


# GeoLite® 40

**Certified, eco-friendly mineral geo-mortar with a crystalline reaction geo-binder base, for passivation, restoration, finishing and monolithic protection of deteriorated concrete structures, ideal for use in GreenBuilding. Very low petrochemical polymer content, free from organic fibres. Thixotropic, semi-rapid setting 40 min**

GeoLite® 40 is a thixotropic geo-mortar used to passivate, restore, finish and protect reinforced concrete structures such as beams, pillars, slabs, front sections, ramps, facades, decorative elements, cornices. Specific for operations involving mobile platforms, low temperatures and where the result must be ready for use quickly. Suitable as an inorganic mineral matrix in composite reinforcement systems in the GeoSteel line. Paintable after 4 hour.



**GREENBUILDING RATING®**

**GeoLite® 40**

- Category: Inorganic mineral products
- Repair and reinforcement of reinforced concrete and masonry
- Rating\*: Eco 4

\*Rating based on average colour formulations

	Natural mineral content 61%		CO <sub>2</sub> /kg emission 199 g	Very low VOC emissions	Can be recycled as inert material

RATING SYSTEM ACCREDITED BY CERTIFICATION BODY SGS

**PRODUCT STRENGTHS**

- **GEO-BINDER.** Exclusive use of the innovative Kerakoll geo-binder with geo-polymer crystallisation revolutionises mortars used to repair concrete, guaranteeing levels of safety never before achieved and unique eco-friendly performance.
- **MONOLITHIC.** The first geo-mortar that forms a monolithic conglomerate that will surround, protect and strengthen reinforced concrete works without the need to apply several layers. The only mortar that is certified to passivate, restore, finish, correct and protect in a single layer.
- **CRYSTALLISING.** The naturally stable, monolithic repairs carried out with GeoLite® crystallise with the concrete to guarantee the durability of a mineral rock.
- **QUICK.** The first geo-mortar that requires just one day's work to achieve complete restoration, as compared with the six days required by traditional restoration mortar cycles involving several layers.
- **TAILORED.** The first range of geo-mortars with different setting times (> 80 – 40 – 10 min.) that can be mixed together to customise setting times according to conditions on the building site.

**ECO NOTES**

- Based on geo-binder
- Eco-friendly concrete restoration
- Very low petrochemical polymer content
- Free from organic fibres
- Formulated with locally-sourced minerals meaning lower greenhouse gas emissions

- during transport, with low CO<sub>2</sub> emissions
- With very low volatile organic compound emissions
- Can be recycled as mineral inert material, avoiding waste disposal costs and environmental impact

**AREAS OF USE**

**Use**

Passivation, localised and generalised restoration; finishing and monolithic protection of reinforced concrete structures, such as beams, pillars, slabs, front sections, ramps, exposed walls, decorative elements, cornices and civil engineering structures. Specific for medium or large size operations, rapid execution of works and results that are ready-for-use within the day. Suitable as an inorganic mineral matrix in composite reinforcement systems from the GeoSteel range, for the static and seismic adaptation or improvement of reinforced concrete or masonry structural elements. Ideal for GreenBuilding and Restoration of Modern Architecture.

**INSTRUCTIONS FOR USE**

**Preparation of substrates**

Before applying GeoLite® 40 restore the concrete surface and roughen it to a depth of at least 5 mm by mechanical scarification or hydro-demolition, thoroughly removing all weakened concrete; after this all rust must be removed from the reinforcing rods, which must be cleaned by brushing (manual or mechanical) or sandblasting. Then proceed with cleaning of the treated surface using compressed air or high-pressure washer, and soak thoroughly to saturate the substrate, but with no liquid water on the surface. Alternatively, GeoLite® Base guarantees proper absorption when applied to highly absorbent, cement-based substrates, and encourages natural crystallisation of the geo-mortar. Before applying GeoLite® 40, check that the resistance class of the supporting concrete is suitable.

\* 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).

## INSTRUCTIONS FOR USE

**High-thickness patching on large surface areas:** a suitable contrasting metallic reinforcement needs to be anchored to the substrate using anchoring pins.

### Preparation

Prepare GeoLite® 40 by mixing 25 kg of powder with the amount of water indicated on the packaging (we advise using the whole bag). A cement mixer can be used – mix until the mortar is smooth with no lumps; compatibly with the speed at which the geo-mortar hardens a suitable mortar machine can also be used to mix and then apply by spraying the product. When mixing small quantities, use a bucket and drill-type mixing device with a low-rev agitator.

Store the product away from any sources of humidity and out of direct sunlight.

### Application

In localised/generalised restoration work in which GeoLite® 40 is applied in thicknesses from 2 mm to 40 mm (maximum per layer), apply the mortar by hand using a trowel or mortar spray machine (bearing in mind the fact that the geo-mortar hardens very quickly).

To create structural reinforcements, systems in which GeoLite® 40 acts as an inorganic mineral matrix, apply an initial layer of geo-mortar, to guarantee a sufficient amount of material on the suitably prepared support (minimum thickness 5-8 mm) to regulate it and allow laying and incorporation of the strengthening sheet. After applying the steel textile, apply a second layer so as to incorporate the reinforcement completely and close up any underlying gaps.

To make a protective finishing, GeoLite® 40 can be applied manually (with a steel spreader) or by machine in a minimum thickness of 2 mm, after first roughening the surfaces to a depth of 1-2 mm.

Allow the surfaces to cure for at least 24 hrs.

### Cleaning

Residual traces of GeoLite® 40 can be removed from tools and machines using water before the product hardens.

## ABSTRACT

*Passivation, localised and generalised centimetre-thick monolithic restoration of deteriorated concrete structural elements, millimetre-thick monolithic protective finishing with manual or machine application of certified, thixotropic, eco-friendly, semi-rapid setting (40 min.) geo-mortar with a crystalline reaction zirconia and geo-binder base, extremely low petrochemical polymer content and free from organic fibres, specific for the passivation, restoration, finishing and guaranteed, long-lasting, monolithic protection of concrete structures, such as GeoLite® 40 by Kerakoll® Spa, GreenBuilding Rating® Eco 4, that is CE-marked and compliant with the performance requirements of Standard EN 1504-7 (passivation of reinforcing bars), EN 1504-3, Class R4 (volumetric reconstruction and finishing) and EN 1504-2 (protection of surfaces), according to Principles 2, 3, 4, 5, 7, 8 and 11 as defined by EN 1504-9.*

## TECHNICAL DATA COMPLIANT WITH KERAKOLL QUALITY STANDARD

Appearance	powder	
Apparent volumetric mass	≈ 1320 kg/m <sup>3</sup>	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 0,5 mm	EN 12192-1
Shelf life	≈ 12 months in the original packaging in dry environment	
Pack	25 / 5 kg bags	
Mixing water	≈ 4,8 ℓ / 1 x 25 kg bag – ≈ 1 ℓ / 1 x 5 kg bag	
Flow of the mixture	160 – 180 mm	EN 13395-1
Density of the mixture	≈ 2010 kg/m <sup>3</sup>	
pH of the mixture	≥ 12,5	
Start/End of setting	≈ 35 – 40 min. (≈ 180 – 195 min. at +5 °C) – (≈ 25 – 30 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/m <sup>2</sup> 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**
**HIGH-TECH**

Performance characteristic	Test Method	Requirements of standard EN 1504-7	GeoLite® 40 Performance
Corrosion protection	EN 15183	no corrosion	value exceeded
Shear adhesion	EN 15184	≥ 80% of the value of the uncovered bar	value exceeded
Performance characteristic	Test Method	Requirements of standard EN 1504-3, class R4	GeoLite® 40 Performance in CC and PCC conditions
Compressive strength	EN 12190	≥ 45 MPa (28 days)	> 6 MPa (4 hrs)
			> 20 MPa (24 hrs)
			> 35 MPa (7 days)
			> 45 MPa (28 days)
Flexural tensile strength	EN 196/1	None	> 2 MPa (4 hrs)
			> 5 MPa (24 hrs)
			> 6 MPa (7 days)
			> 9 MPa (28 days)
Adhesive bond	EN 1542	≥ 2 MPa (28 days)	> 2 MPa (28 days)
Resistance to carbonation	EN 13295	depth of carbonation ≤ reference concrete [MC (0.45)]	value exceeded
Modulus of elasticity under compression	EN 13412	≥ 20 GPa (28 days)	22 GPa in CC - 20 GPa in PCC (28 days)
Thermal compatibility with freeze/thaw cycles with de-icing salts	EN 13687-1	bond strength after 50 cycles ≥ 2 MPa	> 2 MPa
Capillary absorption	EN 13057	≤ 0.5 kg·m <sup>-2</sup> ·h <sup>-0.5</sup>	< 0.5 kg·m <sup>-2</sup> ·h <sup>-0.5</sup>
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 characteristic	Test Method	Requirements of standard EN 1504-2 (C)	GeoLite® 40 Performance
Permeability to water vapour	EN ISO 7783-2	Reference class	class I: SD < 5 m
Capillary absorption and water permeability	EN 1062-3	w < 0.1 kg·m <sup>-2</sup> ·hrs <sup>-0.5</sup>	w < 0.1 kg·m <sup>-2</sup> ·hrs <sup>-0.5</sup>
Bond strength by pull off	EN 1542	≥ 0,8 MPa	> 2 MPa
Linear shrinkage	EN 12617-1	≤ 0,3%	< 0,3%
Thermal expansion coefficient	EN 1770	α <sub>T</sub> ≤ 30·10 <sup>-6</sup> ·k <sup>-1</sup>	α <sub>T</sub> < 30·10 <sup>-6</sup> ·k <sup>-1</sup>
Resistance to abrasion	EN ISO 5470-1	loss of weight < 3000 mg	value exceeded
Adhesion following thermal shock	EN 13687-2	≥ 2 N/mm <sup>2</sup>	> 2 N/mm <sup>2</sup>
Resistance to impact	EN ISO 6272-1	Reference class	Class III : ≥ 20 Nm
Hazardous substances		compliant with point 5.4	

**VOC INDOOR AIR QUALITY (IAQ) - VOLATILE ORGANIC COMPOUND EMISSIONS**

Conformity	EC 1-R plus GEV-Emicode	GEV Certified 3541/11.01.02
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## WARNING

### - Product for professional use

- abide by any standards and national regulations
- 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](mailto:globalservice@kerakoll.com)

The Eco and Bio classifications refer to the GreenBuilding Rating® Manual 2012. This information was last updated in November 2017 (ref. GBR Data Report - 11.17); please note that additions and/or amendments to this information may be made over time by KERAKOLL Spa; for the latest version, see [www.kerakoll.com](http://www.kerakoll.com). KERAKOLL SpA shall therefore be liable for the validity, accuracy and updating of information provided only when taken directly from its institutional website. The technical data sheet given here is based on our technical and practical knowledge. As it is not possible for us to directly check the conditions in your building yards and the execution of the work, this information represents general indications that do not bind Kerakoll in any way. Therefore, it is advisable to perform a preliminary test to verify the suitability of the product for your purposes.



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