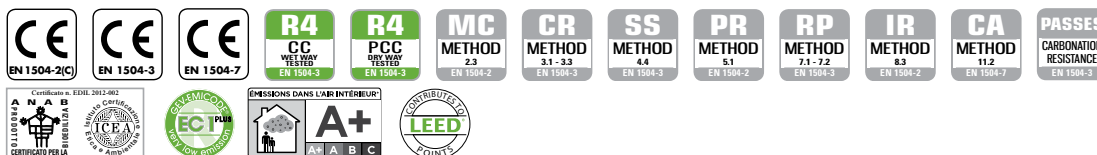


# GeoLite®

**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, normal setting.**

GeoLite® 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 and civil engineering structures such as bridges, viaducts, tunnels and water channels. Suitable as an inorganic mineral matrix in composite reinforcement systems in the GeoSteel line.



### GREENBUILDING RATING®

**GeoLite®**

- Category: Inorganic Mineral Products
- Class: Mineral geo-mortars for monolithic repair and for structural strengthening of concrete
- Rating: Eco 3

|  |  |  |                                       |                        |                                   |
|--|--|--|---------------------------------------|------------------------|-----------------------------------|
|  |  |  |                                       |                        |                                   |
|  |  |  | CO <sub>2</sub> /kg emission<br>239 g | Very low VOC emissions | Can be recycled as inert material |

RATING SYSTEM ACCREDITED BY CERTIFICATION BODY SGS

### ECO NOTES

- Based on geo-binder
- Eco-friendly concrete restoration
- Very low petrochemical polymer content
- Free from organic fibres
- 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

### 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.

### 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 such as bridges, viaducts, tunnels, water channels.

Specific for medium or large size operations, machine application, finishing of large surface areas.

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® roughen the surface of the concrete substrate (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. After this, clean the substrate, removing any remaining dust, grease, oil or other contaminants using compressed air or a high pressure washer, wet the surface until it is fully saturated leaving no excess water what so ever. 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®, 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 metallic reinforcement needs to be anchored to the substrate using anchoring pins.

### Preparation

Prepare GeoLite® 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; a suitable mortar machine can also be used to mix and then spray 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® 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.

To create structural reinforcements, systems in which GeoLite® 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 textile. After applying the steel textile, apply a second layer so as to incorporate the reinforcement completely and close up any underlying gaps.

GeoLite® can be applied manually (with a steel spreader) or by machine in a minimum thickness of 2 mm, to make a protective finishing. Allow the surfaces to cure for at least 24 hrs.

### Cleaning

Residual traces of GeoLite® 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 and civil engineering structures, millimetre-thick monolithic protective finishing with manual or machine application of certified, thixotropic, eco-friendly, normal setting 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® by Kerakoll® Spa, GreenBuilding Rating® Eco 3, 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          | 1340 kg/m <sup>3</sup>  | UEAtc      |
| Aggregate mineral content         | Silica - carbonate  |            |
| Grading                           | 0 – 0,5 mm  | EN 12192-1 |
| Shelf life                        | ≈ 12 months in the original packaging in dry environment                |            |
| Pack                              | 25 kg bags  |            |
| Mixing water                      | ≈ 5.1 l / 1 x 25 kg bag   |            |
| Flow of the mixture               | 140 – 160 mm  | EN 13395-1 |
| Density of the mixture            | ≈ 2050 kg/m <sup>3</sup>  |            |
| 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/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**

| <b>Performance characteristic</b>  | <b>Test Method</b> | <b>Requirements of standard EN 1504-7</b>             | <b>GeoLite® Performance</b>                           |
|--|--------------------|---|---|
| Corrosion protection   | EN 15183           | no corrosion  | value exceeded  |
| Shear adhesion   | EN 15184           | ≥ 80% of the value of the uncovered bar               | value exceeded  |
| <b>Performance characteristic</b>  | <b>Test Method</b> | <b>Requirements of standard EN 1504-3, class R4</b>   | <b>GeoLite® Performance in CC and PCC conditions</b>  |
| Compressive strength   | EN 12190           | ≥ 45 MPa (28 days)                                    | > 15 MPa (24 hrs)                                     |
|  |                    |   | > 40 MPa (7 days)                                     |
|  |                    |   | > 55 MPa (28 days)                                    |
| Flexural tensile strength  | EN 196/1           | None  | > 5 MPa (24 hrs)                                      |
|  |                    |   | > 8 MPa (7 days)                                      |
|  |                    |   | > 10 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)                                    | 25 GPa (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  |
| <b>Performance characteristic</b>  | <b>Test Method</b> | <b>Requirements of standard EN 1504-2 (C)</b>         | <b>GeoLite® Performance</b>                           |
| Permeability to water vapour   | EN ISO 7783-2      | Reference class                                       | class I: s <sub>0</sub> < 5 m                         |
| Capillary absorption and water permeability  | EN 1062-3          | w < 0,1 kg·m <sup>-2</sup> ·h <sup>-0,5</sup>         | w < 0,1 kg·m <sup>-2</sup> ·h <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                              |   |
| <b>QUALITÀ DELL'ARIA INTERNA (IAQ) VOC - EMISSIONI SOSTANZE ORGANICHE VOLATILI</b> |                    |   |   |
| Conformity   |                    | EC 1-R plus GEV-Emicode                               | GEV certified 3539/11.01.02                           |

## 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 2013. This information was last updated in June 2014 (ref. GBR Data Report - 07.14); please note that additions and/or amendments 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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