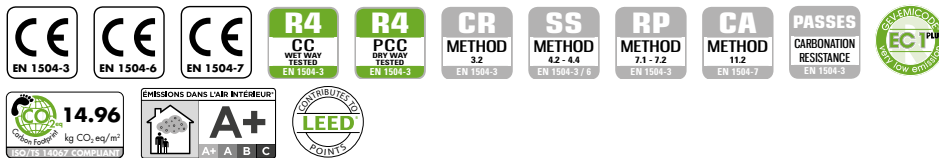


GeoLite® Magma 20

S-P-01089 EPD^{*}
environdec.com

Certified, eco-friendly mineral geo-mortar with a crystalline reaction geo-binder base, for passivation, repair and monolithic consolidation of deteriorated concrete structures, ideal for use in GreenBuilding. Very low petrochemical polymer content, free from organic fibres. Pourable, rapid setting 20 min

GeoLite® Magma 20 is a pourable geo-mortar for passivation, repair and consolidation of reinforced concrete structures and civil engineering structures that must be ready for use quickly, such as industrial and airport flooring, joints in motorway decking, pavements and with a swelling effect to anchor and fix traps and drains, manholes, fences, sign posts, safety barriers.



GREENBUILDING RATING®

GeoLite® Magma 20

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

Natural mineral content 62%	CO ₂ /kg emission 188 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
 - Formulated with locally-sourced minerals meaning lower greenhouse gas emissions
- during transport, with low CO₂ 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 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, reconstruct and consolidate reinforced concrete works. The only mortar that is certified to passivate, reconstruct and consolidate 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 can be driven over just 2 hours after application.
- **TAILORED.** The first range of geo-mortars with different setting times (> 60 – 20 min.) that can be mixed together to customise setting times according to conditions on the building site.



AREAS OF USE

Use

Passivation, restoration and monolithic consolidation of reinforced concrete structures and infrastructures which must be ready for use quickly even at low temperatures, such as industrial and airport flooring, pavements, drains.

Fixing and anchoring of tie-rods, plates, machinery, pre-fabricated structures, road traps, manholes, fencing, road signs, protective barriers.

Ideal for GreenBuilding and Restoration of Modern Architecture.

INSTRUCTIONS FOR USE

Preparation of substrates

Before applying GeoLite® Magma 20 restore the concrete surface and roughen it to a depth of ≥ 5 mm, equal to level 9 of the Test Kit for preparation of reinforced concrete and masonry substrates, by mechanical scarification or hydro-demolition, thoroughly removing all weakened concrete; after this all rust must be removed from the reinforcing bars, which must be cleaned by polishing (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 dry substrate, and encourages natural crystallisation of the geo-mortar. Before applying GeoLite® Magma 20, check that the resistance class of the supporting concrete is suitable.

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

* 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

Preparation

Prepare GeoLite® Magma 20 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 using a cement mixer (compatibly with the speed at which the geomortar hardens) – mix until the mortar is smooth with no lumps. 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

GeoLite® Magma 20 should be poured to form a layer not less than 10 mm thick. When patched layers are more than 60-100 mm thick, according to the type of work being carried out and the size of the operation, and in compliance with the proper application methods, prepare a fine-grain concrete, adding Kerabuild Ghiaia 6 – 10 in a ratio of 30% of the weight of GeoLite® Magma 20 (30 kg of Kerabuild Ghiaia 6 – 10 to 100 kg of GeoLite® Magma 20) so as to optimise the granulometric curve according to the application thickness.

GeoLite® Magma 20 must be integrated with the structure to be restored by incorporating the existing reinforcing rods, after freeing them from the concrete, or by inserting additional reinforcement in the form of rods or electro-welded mesh.

On properly scarified horizontal concrete surfaces we recommend applying GeoLite® Base by spraying, using brush or roller until saturation point. GeoLite® Base promotes crystallisation of the substrate to GeoLite® Magma. Overlay the geo-mortar after 1 hour, and no more than 8 hours, according to the environmental conditions. Repeat the operation after more than 8 hours.

Allow the surfaces to cure for at least 24 hrs.

Cleaning

Residual traces of GeoLite® Magma 20 can be removed from tools and machines using water before the product hardens.

ABSTRACT

Passivation, restoration and monolithic consolidation of deteriorated concrete structural elements and civil engineering structures and fixing of drains, manholes and street furniture with rapid return to normal use, even at low temperatures, by casting of certified, eco-friendly, pourable, rapid setting (20 min.) mineral geo-mortar with a crystalline reaction geo-binder base, extremely low petrochemical polymer content and free from organic fibres, specific for the passivation, restoration and guaranteed long-lasting monolithic consolidation of concrete structures and the anchoring of metal elements, such as GeoLite® Magma 20 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 consolidation) and EN 1504-6 (anchoring with a swelling effect), according to Principles 3, 4, 7 and 11 as defined by EN 1504-9.

TECHNICAL DATA COMPLIANT WITH KERAKOLL QUALITY STANDARD

Appearance	powder	
Apparent volumetric mass	≈ 1360 kg/m ³	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 2.5 mm	EN 12192-1
Shelf life	≈ 6 months in the original packaging in dry environment	
Pack	25 kg bags	
Mixing water	≈ 3.5 l / 1 x 25 kg bag	
Flow of the mixture	270 – 290 mm with no shaker table vibration	EN 13395-1
Density of the mixture	≈ 2220 kg/m ³	
pH of the mixture	≥ 12.5	
Pot life	≈ 30 min. (at +5 °C) / ≈ 25 min. (at +10 °C) / ≈ 15 min. (at +21 °C)	
Start/End of setting	≈ 20 – 30 min. (≈ 35 – 40 min. at +5 °C)	
Temperature range for application	from +5 °C to +40 °C	
Embedded bar adhesive tension	> 25 MPa	RILEM-CEB-FIP-RC6-78
Minimum thickness	10 mm	
Maximum thickness	60-100 mm (according to the type of work and the size of the operation) for thicker layers, mix Geolite® Magma 20 with Kerabuild Ghiaia 6 – 10	
Coverage	≈ 19.5 kg/m ² 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® Magma 20 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 EN 1504-3 class R4	GeoLite® Magma 20 performance in CC and PCC conditions at temperature of:	
			+5 °C	+21 °C
Compressive strength	EN 12190	≥ 45 MPa (28 days)	> 10 MPa (2 hrs)	> 15 MPa (2 hrs)
			> 15 MPa (4 hrs)	> 20 MPa (4 hrs)
			> 35 MPa (24 hrs)	> 45 MPa (24 hrs)
			> 55 MPa (7 days)	> 70 MPa (7 days)
			> 65 MPa (28 days)	> 80 MPa (28 days)
Flexural tensile strength	EN 196/1	none	> 2 MPa (2 hrs)	> 3 MPa (2 hrs)
			> 3 MPa (4 hrs)	> 4 MPa (4 hrs)
			> 5 MPa (24 hrs)	> 7 MPa (24 hrs)
			> 6 MPa (7 days)	> 9 MPa (7 days)
			> 8 MPa (28 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)	32 GPa in CC - 29 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 ⁻² ·h ^{-0.5}	< 0.5 kg·m ⁻² ·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 characteristic	Test method	Requirements of standard EN 1504-6	GeoLite® Magma 20 performance	
Pull-out strength of steel rebars (movement in mm in relation to a 75 kN load)	EN 1881	≤ 0.6	< 0.6	
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%	
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 3543/11.01.02
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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

The Eco and Bio classifications refer to the GreenBuilding Rating® Manual 2013. This information was last updated in December 2018 (ref. GBR Data Report - 12.18); please note that additions and/or amendments may be made over time by KERAKOLL SpA, for the latest version, see 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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