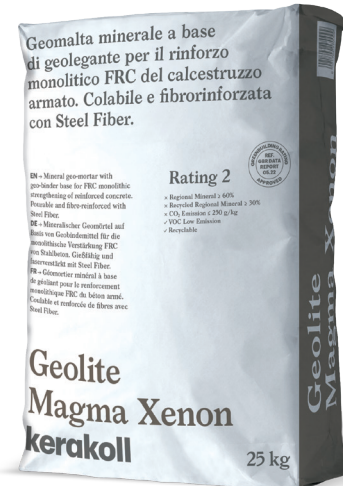


Geolite Magma Xenon

Mineral geo-mortar with geo-binder base for FRC monolithic strengthening of reinforced concrete.

When combined with Steel Fiber, Geolite Magma Xenon forms a high ductility, certified, fibre-reinforced, pourable geo-mortar for passivating, repairing and consolidating reinforced concrete structures.



Rating 2

1. C.V.T. certified, pourable FRC system
2. It does not need additional rebars
3. Thicknesses from minimum 15 mm
4. Based on geo-binder
5. For high ductility monolithic strengthening

- × Regional Mineral $\geq 60\%$
- × Recycled Regional Mineral $\geq 30\%$
- × CO₂ Emission ≤ 250 g/kg
- ✓ VOC Low Emission
- ✓ Recyclable

Areas of application

→ Use

Inorganic mineral matrix to be used with Steel Fiber for the preparation of the high ductility, ultra-high performance, pourable, fibre-reinforced, C.V.T.-certified Geolite FRC mortar, for the repair and strengthening of structural elements, by means of low thickness interventions without the use of additional rebars.

Passivation, restoration and monolithic consolidation of reinforced concrete structures and infrastructures:

- by the formwork casting of concrete for vertical structures and at the soffit of horizontal elements;
- by pouring onto the top surface of horizontal elements or by bonded section underpinning in general.

Precision fastening and structural anchoring of sub-plates, tie-rods, bars, plates, machinery on reinforced concrete.

Instructions for use

→ Preparation of substrates

Before applying the Geolite FRC system – Geolite Magma Xenon & Steel Fiber 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 9 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 Geolite Base on a dry substrate in order to ensure regular absorption and promote the natural crystallisation of the geomortar.
- apply Kerabuild Epoprimer on a dry substrate to obtain a chemical-type anchoring; alternatively, use shear connectors for mechanical anchoring.

Check that the resistance class of the supporting concrete is suitable.

→ Preparation

The Geolite FRC - Geolite Magma Xenon & Steel Fiber system can be prepared in:

- a mixer, mixing Geolite Magma Xenon with the quantity of water shown on the package for about 6 minutes, until a smooth and lump-free mortar is obtained; then slowly add Steel

- Fiber in the amount of 6.5 % of the weight of the powder (1.66% by volume = 1 packaging of Steel Fiber every 4 bags of Geolite Magma Xenon) and further mix for approximately 2 minutes in order to ensure perfect distribution of Steel Fiber inside the binder matrix;
- a suitable mortar machine, then pump the product;
- a mortar mixer or drill-type mixing device with a low-rev agitator, while keeping the percentage of steel fibres unchanged.

→ Application

Apply the Geolite FRC – Geolite Magma Xenon & Steel Fiber system by pouring or pumping it on the extrados of horizontal surfaces or in sealed formworks treated with a parting compound that assists air escape, using the correct application techniques.

Application thicknesses shall not be less than 15 mm; for thicknesses greater than 40 mm, provide a reinforcing welded mesh anchored to the substrate.

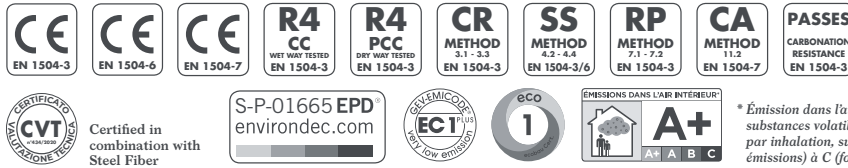
In case of mechanical applications, it is recommended to use a suitably equipped endless screw plastering machine (such as Turbosol or Putzmeister).

Allow the surfaces to cure for at least 48 hrs. Cover with a waterproof sheet for the next 5 days.

→ Cleaning

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

Certificates and marks



Certified in combination with Steel Fiber

S-P-01665 EPD
environdec.com

ECT
LOW EMISSION

eco
1

ÉMISSIONS DANS L'AIR INTÉRIEUR
A+

* 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

Geolite FRC system – Geolite Magma & Steel Fiber: repair and structural strengthening of reinforced concrete using a high ductility, ultra-high performance, pourable, fibre-reinforced mortar, FRC (Fibre Reinforced Concrete), created with steel fibres obtained by cold drawing of high-performance and high carbon content wire, such as Steel Fiber, by Kerakoll Spa, CE-marked and compliant with the performance requirements of Standard EN 14889-1, immersed in a certified, pourable, normal-setting, mineral geo-mortar with a geo-binder base, with very low petrochemical polymer content and free of organic fibres, specific for the passivation, repair and guaranteed, long-lasting monolithic strengthening of concrete structures and the anchoring of metal elements, such as Geolite Magma Xenon by Kerakoll Spa, GreenBuilding Rating 2, CE-marked and compliant with the performance requirements of Standards EN 1504-7 for the passivation of reinforcing bars, EN 1504-3, R4 Class, for volumetric reconstruction and strengthening and EN 1504-6 with a swelling effect for anchoring, according to Principles 3, 4, 7 and 11 defined by EN 1504-9. C.V.T. certified mechanical characteristics: compressive strength C80/95 (EN 12390-3); modulus of elasticity under compression 43.41 GPa (NTC 2018); tensile strength 7.40 MPa (average value, CNR DT 204); tenacity class 8b $f_{R,1k} = 9.54$ MPa, $f_{R,2k} = 8.83$ MPa, $f_{R,3k} = 7.33$ MPa and $f_{R,4k} = 6.10$ MPa (typical values, EN 14651).

Technical Data compliant with Kerakoll Quality Standard

Appearance	Powder	
Apparent volumetric mass	≈ 1250 kg/m ³	UEAtc
Aggregate mineral content	silicate - carbonate	
Grading	0 – 1.5 mm	EN 12192-1
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water:		
- into the cement mixer	≈ 3.3 l / 1 bag 25 kg	
- manual and mechanical mixing	≈ 3.1 l / 1 bag 25 kg	
Mixture spread	215 mm with no shaker table vibration	EN 13395-1
Density of the mixture	≈ 2270 kg/m ³	
pH of the mixture	≥ 12.5	
Pot life	≥ 60 min. (at + 21 °C)	
Start/End of setting	> 360 min.	
Temperature range for application	from +5 °C to +40 °C	
Minimum thickness	15 mm	
Maximum thickness	40 mm	
Coverage	≈ 20 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			
VOC Indoor Air Quality (IAQ) - Volatile organic compound emissions			
Conformity	EC 1 plus GEV-Emicode	GEV certified 10894/11.01.02	
HIGH-TECH			
Performance characteristic	Test Method	Requirements of standard EN 1504-7	Geolite Magma Xenon performance
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	Geolite Magma Xenon performance in CC and PCC conditions
Compressive strength	EN 12190	≥ 45 MPa (28 days)	> 70 Mpa (24 hrs) > 85 Mpa (7 days) > 110 Mpa (28 days)
Flexural tensile strength	EN 196-1	None	> 8 MPa (24 hrs) > 10 MPa (7 days) > 14 MPa (28 days)
Adhesive bond	EN 1542	≥ 2 MPa (28 days)	> 2 MPa (28 days)
Resistance to carbonation	EN 13295	dk ≤ reference concrete [MC (0.45)]	value exceeded
Modulus of elasticity under compression	EN 13412	≥ 20 GPa (28 days)	34 GPa in CC 33 GPa in PCC
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
	Test Method	Requirements of standard EN 1504-6	Geolite Magma Xenon performance
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 Magma Xenon aggregate performance
Alkali-aggregates reaction	UNI 11504	reactivity class	NR (non-reactive)

Performance		
HIGH-TECH		
Geolite FRC System – Geolite Magma Xenon & Steel Fiber (in accordance with CVT no. 434/2020)		
Performance characteristic	Test Method	Geolite Magma Xenon & Steel Fiber performance
Density (product when hard)	EN 12390-7	2250 kg/m ³
Compressive strength (characteristic value)	EN 12390-3	$R_{ck} = 106,50$ MPa C80/95
Modulus of elasticity under compression	NTC 2018	43,41 GPa
Poisson coefficient	NTC 2018	0 – 0,2
Coefficient of linear thermal expansion	NTC 2018	$10 \cdot 10^{-6} \text{ } ^\circ\text{C}^{-1}$
Residual flexural strength (characteristic value)	EN 14651	$f_{R,1k} = 9,54$ MPa
		$f_{R,2k} = 8,83$ MPa
		$f_{R,3k} = 7,33$ MPa
		$f_{R,4k} = 6,10$ MPa
		$f_{R,3k} / f_{R,1k} = 0,768$
Resistance to proportionality limit (average and characteristic value)	EN 14651	$f_{ict,L} = 6,95$ MPa
		$f_{ict,Lk} = 5,91$ MPa
Tenacity class	EN 14651	8b
Tensile strength (average value)	CNR DT 204	$f_{Fts} = 7,40$ MPa
Exposure classes	EN 206	X0
		XC1, XC2, XC3, XC4
		XD1, XD2, XD3
		XS1, XS2, XS3
		XF1, XF2, XF3, XF4
		XA1
Freeze/thaw resistance (after 20 cycles)	EN 12390-9	98% ($f_{R,1}$)
		101% ($f_{R,3}$)
Resistance to high temperatures (+100 °C)		99% ($f_{R,1}$)
		101% ($f_{R,3}$)
Reaction to fire	EN 13501-1	class A1
INSTALLATION CONDITIONS		
Temperature range (air and surface)		from +5 °C to +40 °C
Relative humidity (air and substrate)		irrelevant
SERVICE CONDITIONS		
Temperature range (air and surface)		from -20 °C to +100 °C
Relative humidity (air and substrate)		irrelevant

Warning

- Product for professional use
- 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
- following application, protect from direct sunlight and wind
- allow the product to cure during the first 48 hours
- if necessary, ask for the safety data sheet
- when laying on gypsum, metal or timber, contact Kerakoll Worldwide Global Service
- for any other issues, contact the Kerakoll Worldwide Global Service +39 0536 811 516 - globalservice@kerakoll.com

Kerakoll Quality System ISO 9001 CERTIFIED 1710/0327	Kerakoll Quality System ISO 14001 CERTIFIED 18586-E	Kerakoll Quality System ISO 45001 CERTIFIED 18586-I
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The Rating classifications refer to the GreenBuilding Rating Manual 2013. This information was last updated in May 2022 (ref. GBR Data Report – 05.22); 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.