Geocalce FL Antisismico

Fluid, breathable structural geo-mortar made from pure natural NHL lime and geo-binder – Class M15. Specific for use as a fluid mineral mortar in consolidating injections and as a matrix in combination with GeoSteel galvanised steel fibre thread connectors to create certified connections for structural reinforcement, improvement and seismic adaptation.
Certified to improve the safety of buildings.

Geocalce FL Antisismico (anti-seismic) is a special geo-mortar for M15 resistance class consolidation injections according to EN 998-2, in reinforcement and structural alteration of brick, stone, mixed or tuff walls.

GREENBUILDING RATING
REF. GBR DATA REPORT 07.23
APPROVED

Rating 5

- ✓ Pollution Reduced
- ✓ Bacteriostatic
- ✓ VOC Low Emission
- ✓ CO_2 Emission ≤ 250 g/kg
- ✓ Recycled Regional Mineral ≥ 30%

1. Health and safety
   The first breathable lime-based structural mortars that ensure high permeability to vapour. Used in combination with Kerakoll strengthening systems, they increase the mechanical resistance of the existing walls in order to improve the structural safety of the building.
2. Low elastic modulus
   Thanks to the use of NHL lime and the geo-binder, the Geocalce range features a low elastic modulus that creates a perfect balance with characteristic strengths typical of masonry structures of all types.
3. Culture and tradition
   The Geocalce range respects and satisfies the needs of applications on buildings subjected to Historical Restoration of Environmental and Architectural Heritage buildings and on traditional buildings.
4. Bacteriostatic and fungistatic product (CSTB method)**

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*** Tests carried out according to CSTB method, bacterial and fungal contamination*

Natural Ingredients

Pure NHL 3.5 certified natural lime

Mineral geo-binder

Siliceous washed natural river sand (0.1 – 0.5 mm)

Micronized pure white Carrara marble (0 – 0.06 mm)

Pure Fine White Carrara Marble (0 – 0.2 mm)

Areas of application

→ Intended use:
Geocalce FL Antisismico is ideal for the breathable structural reinforcement of masonry elements, specific for consolidating injections. Geocalce FL Antisismico is suitable to fix artificial thread connector systems made in combination with GeoSteel G600 and G1200 unidirectional, galvanized steel fibre sheets.

Geocalce FL Antisismico is particularly well suited to provide reinforcement of masonry structures in which the all-natural origin of its elements guarantees compliance with the required levels of porosity, hygroscopicity and breathability.

Geocalce FL Antisismico is suitable for natural and breathable consolidation, and for functional recovery of frescoed plaster in Historical Restoration, in which the selection of traditional elements guarantees preservation procedures that respect the existing structures and original materials.

Do not use before grouting, plastering or finishing the surfaces of the masonry elements to be consolidated.

Instructions for use

→ Preparation of substrates
The entire surface of areas to be consolidated with Geocalce FL Antisismico should be grouted or plastered using mortars in the Geocalce range or Biocalce range, while inserting thin tubes or injector nozzles at equal distances (50x50 cm mesh recommended) for subsequent filling with Geocalce FL Antisismico. Containment of the hyperfluid geo-mortar is ensured in this way with no change to the transpiration of the masonry. Always carry out the injection operation working from the bottom up, to facilitate expulsion of the air and to ensure the continuity of structural compacting. Before injecting the consolidating and filling geo-mortar into the cracks, weakened parts, cavities or debonding segments, the whole internal structure must be saturated with water, using the same access routes created for the geo-mortar itself.
Inject Geocalce FL Antisismico from the bottom upwards only after you are sure the structure has absorbed all the water injected.

→ Preparation
To prepare Geocalce FL Antisismico, mix one 25-kg bag using clean water, in the amount shown on the package. The mixture is obtained by pouring water into the container and then gradually adding the powder. The mixing process can be performed in a cement mixer, in a bucket (working manually or with a low-rev, mechanical stirring device) or using a continuous mixer until a smooth and lump-free consistency is obtained. It is also possible to use a plaster sprayer to mix and simultaneously pump the product, using a stator-rotor with suitable capacity.
Use all of prepared mixture; do not reuse it in subsequent mixings. Use running water not subject to the influence of outside temperatures. Do not add other components (binders or generic inert materials) to the mix.

Instructions for use

→ Application
Apply Geocalce FL Antisismico by injection, using mechanical pumps or pressure tanks, or by pouring in from the top. The product should be injected from the bottom upwards in order to ensure all remaining air in the section to be filled is expelled, thereby preventing the formation of air pockets. When Geocalce FL Antisismico comes out of the upper injector, injection is stopped, the injector in use is closed and operation is continued with the higher injector. This must be repeated until reaching the top of the element to be consolidated. On horizontal surfaces, on the other hand, either pour the product or prepare an entry injection into the debonding area and a number of exit holes directly opposite the injection point. In this case too, the gap has been filled when the geo-mortar begins to overflow from the exit holes.
Geocalce FL Antisismico ensures extended workability and pumping times, and does not become segregated inside the pumps even in the presence of working pressure.
The product may also be pumped from considerable distances and to high points of discharge, thus allowing for setup of the point of operation at ground level on the building site and avoiding manual movement of bags and equipment.

→ Cleaning
Geocalce FL Antisismico is a natural product and tools can be cleaned using only water before the product hardens.

Special notes

→ In the case of pressure injection, maximum pumping pressure must be monitored and automatically checked to avoid the formation of overpressure or “surges” within the masonry being worked on.

→ The most common control systems are:
- application of a pressure gauge connected with a solenoid valve inside electric pumps
- adjustment of outlet air pressure on the pressure tank compressor (system recommended on account of its simplicity of use and its sensibility of adjustment at low pumping pressures).

Certificates and marks

CE mark in combination with GeoSteel G600 and G1200 for masonry structures

* *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

Consolidation of cracks and damage on elements in masonry and repair of cavity walls, wattle-type walls and debonding plaster, are achieved by injecting a compact, highly breathable and hygroscopic geo-mortar with excellent water retention and a hyperfluid consistency, with pure NHL 3.5 natural hydraulic lime and geo-binder base, GreenBuilding Rating 5 (such Geocalce FL Antisismico by Kerakoll Spa). The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, guarantee total resistance to salts. The natural geo-mortar must also comply with the requirements of EN 998/2-G M15. Reaction to fire class A1. Consolidating injections into loose or damaged material must be carried out at low pressure to avoid the formation of overpressure or "surges" within the structures, which might result in weakening or collapse. Flat surfaces or gaps must be perfectly prepared or grouted to ensure that the injection geo-mortar is contained. Injections will be carried out at a max. of 1.5 bar.
Coverage Geocalce FL Antisismico (anti-seismic): ≈ 1.5 kg/dm³.

Technical Data compliant with Kerakoll Quality Standard		
Appearance	Powder	
Grading	0 – 100 µm	EN 1015-1
Apparent density of powder	≈ 1.31 kg/dm³	UEAtc
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 7.5 l / 1 x 25 kg bag	
Apparent density of wet mortar	≈ 2 kg/dm³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1.5 kg/dm³	EN 1015-10
Fluidity of mixture (Flow-cone):		
- 0 min.	52 s	
- 30 min.	50 s	
- 60 min.	48 s	EN 445
Ford cup Fluidity	< 60" (with D6 nozzle)	
pH of the mixture	≥ 12	
Segregation	none	
Exudation test	0,1%	EN 445
Temperature range for application	from +5 °C to +35 °C	
Coverage	≈ 1.5 kg/dm³	

Values taken at +20 ± 2 °C, 65 ± 5% 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 4384/11.01.02
Active INDOOR AIR QUALITY (IAQ) - Dilution of indoor pollutants *			
	Flow	Dilution	
Toluene	181 µg m²/h	+89%	JRC method
Pinene	202 µg m²/h	+25%	JRC method
Formaldehyde	7950 µg m²/h	+21%	JRC method
Carbon dioxide (CO_2)	28 mg m²/h	+29%	JRC method
Humidity (Humid Air)	21 mg m²/h	+50%	JRC method
Bioactive INDOOR AIR QUALITY (IAQ) - Bacteriostatic action **			
Enterococcus faecalis	Class B+ no proliferation		CSTB method
Bioactive INDOOR AIR QUALITY (IAQ) - Fungistatic action **			
Penicillum brevicompactum	Class F+ no proliferation		CSTB method
Cladosporium sphaerospermum	Class F+ no proliferation		CSTB method
Aspergillus niger	Class F+ no proliferation		CSTB method
HIGH-TECH			
Mortar class	M15		EN 998-2
Permeability to water vapour (µ)	from 15 to 35 (table value)		EN 1745
Water capillary absorption	≈ 0.6 kg/(m² · $min^{0.5}$)		EN 1015-18
Embedded bar adhesive tension	≥ 3.5 MPa		RILEM – CEB – FIPRC6-78
Reaction to fire class	A1		EN 13501-1
Compressive strength after 28 days	≥ 15 N/mm²		EN 1015-11
Thermal conductivity (λ10, dry)	0.82 W/(m K) (table value)		EN 1745
Static modulus of elasticity	9.5 GPa		EN 13412

Values taken at +20 ± 2 °C, 65 ± 5% R.H. and no ventilation. Data may vary depending on specific conditions at the building site.
*Tests carried out according to JRC method - Joint Research Centre - European Commission, Ispra (Varese, Italy) - to measure the reduction of polluting substances in indoor environments (Indoortron Project). Flow and speed in proportion to a standard construction mortar (1.5 cm).
**Tests carried out according to CSTB method, bacterial and fungal contamination

Warning

→ Product for professional use
→ abide by any standards and national regulations
→ store the product in places protected against the heat in summer months and against the cold during the winter
→ protect the surfaces from air currents
→ 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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