Geocalce F Antisismico

Fine-grain, breathable structural geo-mortar made from pure natural NHL range and geo-binder – Class M15. Specific for use as a mineral matrix to be used with Geosteel galvanized steel sheets, Geosteel Grid basalt and stainless steel fibre mesh and Steel Dryfast stainless steel helical bars in certified structural reinforcement, improvement and seismic adaptation systems.
Certified to improve the safety of buildings.



Geocalce F Antisismico (anti-seismic) is a geo-mortar with M15 resistance class according to EN 998-2 and R1 according to EN 1504-3, for operations on highly breathable walls and concrete structures.

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.

kerakoll

Natural Ingredients



Pure NHL 3.5 certified natural lime



Mineral geo-binder



Siliceous Washed Natural River Sand (0.1-0.5 mm



Siliceous Washed Natural River Sand (0,1-1 mm)



Selected Dolomitic Limestone (0-1,4 mm)



Pure fine white Carrara marble (0-0,2 mm)

Areas of application

→ Intended use
Geocalce F Antisismico is ideal for the breathable structural strengthening of masonry elements and the protection of non-structural elements, To be used in combination with Geosteel G galvanized steel sheets, Geosteel Grid basalt and stainless steel fibre mesh, Geo Grid 120 basalt fibre mesh, Rinforzo ARV 100 AR fibreglass and aramid fibre mesh and Steel Dryfast and Steel Dryfast 6 stainless steel helical bars.
Geocalce F Antisismico can be used to build new walls and to repair damaged masonry facings, respecting the mechanical performance levels of the existing wall.

Geocalce F Antisismico is particularly well suited to provide reinforcement of masonry structures in which the all-natural origin of its components guarantees compliance with the required levels of porosity, hygroscopicity and breathability. Where capillary moisture rising is present, complete the cycle with Benesserebio.

Do not use on existing plasters/renders or finishing coats, on substrates which are dirty, non-cohesive, powdery or on previous paint coats and salt scaling.

Instructions for use

→ Preparation of substrates
The substrate must be clean and solid, free from loose debris, dust and mould. Clean the surfaces by sand-blasting or sanding until achieving a surface roughness equal to level 8 of the test kit for preparation of reinforced concrete and masonry substrates. Subsequent power washing to remove all residue from previous operations which could impair adhesion. Remove inconsistent rendering mortars from between the stones. Use Geocalce F Antisismico and the fragment-filling and/or break-fill techniques to rebuild missing sections of the wall and restore an even surface. Always wet substrates before applying the product.

→ Preparation and application
To prepare Geocalce F Antisismico, mix one 25-kg bag using clean water, in the amount shown on the package, in a standard concrete mixer. Mix by pouring water into the clean cement mixer and then add the powder in one operation. Wait until the right consistency forms while mixing. In the first 1-2 minutes the product will seem dry; do not add water at this stage. Keep mixing for 4-5 minutes until a smooth, spongy and lump-free consistency is achieved. Use all of prepared mixture; do not reuse it in subsequent mixings.

Instructions for use

Geocalce F Antisismico has the same plasticity of the best natural limes, making it ideal for applications using a plaster sprayer. It is recommended to use a continuous cycle pump equipped with a stator suitable for the maximum grain size of the product (1.4 mm) or an indirect mixing pump. Geocalce F Antisimico can be easily applied with a trowel or spray like a normal plaster/render. Prepare the substrate, filling in any fragments if necessary to create a flat, smooth surface. Then wet the substrate until it is fully saturated yet dry, leaving no excess water on the surface.

→ Strengthening of masonry elements by widespread retrofitting and protection of non-structural elements
Low thickness spot reinforcement systems are created in the following phases:
a) apply a first layer of Geocalce F Antisismico, thickness approximately 3-5 mm;
b) with the mortar still fresh, lay the Geosteel Grid 200/400, basalt and stainless steel fibre mesh, or the Geosteel Grid 120 basalt fibre mesh, or the Rinforzo ARV 100 AR fibreglass and aramid mesh, taking care to ensure the mesh is completely impregnated and avoiding the formation of any voids or air bubbles that might compromise adhesion of the mesh to the matrix or to the substrate;
c) insert any Geosteel thread connector systems, created using Geosteel G600/G1200 sheets and with injection of Geocalce FL Antisismico, or dry connections, created using Steel Dryfast bars. Select the most suitable connection system according to the wall;
d) apply the second layer of Geocalce F Antisismico, thickness approximately 2-5 mm, in order to fully incorporate the reinforcement mesh and fill any underlying voids;
e) repeat phases (a) and (b) if necessary for all the subsequent reinforcement layers required by the project.

→ Reinforcement of masonry elements with band fixing
Low thickness band reinforcement systems are created in the following phases:
a) apply a first layer of Geocalce F Antisismico, thickness approximately 3-5 mm;
b) with the mortar still fresh, lay the Geosteel G600 or Geosteel G1200 galvanized steel fibre sheet, taking care to ensure the sheet is completely impregnated and avoiding the formation of any voids or air bubbles that might compromise adhesion of the sheet to the matrix or to the substrate;
c) insert any Geosteel thread connector systems, created using Geosteel G600/G1200 sheets and with injection of Geocalce FL Antisismico, or dry connections, created using Steel Dryfast bars. Select the most suitable connection system according to the wall;
d) apply the second layer of Geocalce F Antisismico, thickness approximately 2-5 mm, in order to fully incorporate the reinforcement mesh and fill any underlying voids;
e) repeat phases (a) and (b) if necessary for all the subsequent reinforcement layers required by the project.

→ Cleaning
Tools can be cleaned using water before the product hardens.

Special notes

→ Outdoors, provide for a separation from floors, walkways or horizontal surfaces in general, to avoid possible capillary draw phenomena; similarly, protect the Kerakoll strengthening system against the elements by applying Kerakover Silox Pittura.

Certificates and marks

CE-marked in combination with Geosteel G600 and G1200, Geosteel Grid 200 and 400 and Rinforzo ARV 100 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

Reinforcement of masonry elements using spot or band fixing, arrangement, pointing, or creating structural fine-grain concretes are done with a geo-mortar with very high hygroscopicity and breathability for internal and external walls with a base of pure natural NHL 3.5 and geo-binder, inert siliceous sand, and Dolomitic limestone on granulometric curve 0 – 1.4 mm (such as Geocalce F Antisismico by Kerakoll Spa). The geo-mortar must also meet the requirements of standard EN 998-2 – G/ M15, and EN 1504-3 – R1 PCC, A1 class reaction to fire. The geo-mortar covering must not exceed 15 mm, levelling layers, rustic finish coat done with flattener, squaring up of edges and corners, and excluding the cost of scaffolding hire. To be applied by hand or using a plastering machine. Coverage Geocalce F Antisismico: ≈ 14 kg/m² per cm of thickness.

Technical Data compliant with Kerakoll Quality Standard		
Appearance	powder	
Aggregate mineral content	silicate - carbonate	
Grading	0 – 1.4 mm	
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 4.5 l / 1 x 25 kg bag	
Apparent density of wet mortar	≈ 1730 kg/m³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1580 kg/m³	EN 1015-10
Temperature range for application	from +5 °C to +35 °C	
Maximum thickness per layer	≈ 1.5 cm	
Coverage	≈ 14 kg/m² per cm of thickness	

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 4093/11.01.02
Active Indoor Air Quality (IAQ) - Dilution of indoor pollutants *			
	Flow	Dilution	
Toluene	299 µg m²/h	+100%	JRC method
Pinene	162 µg m²/h	+14%	JRC method
Formaldehyde	2330 µg m²/h	test failed	JRC method
Carbon dioxide (CO_2)	388 mg m²/h	+453%	JRC method
Humidity (Humid Air)	26 mg m²/h	+21%	JRC method
HIGH-TECH			
Performance characteristic	**Test Method**	**Requirements of standard EN 998-2**	**Performance**
Compressive strength after 28 days	EN 1015-11	Reference class	Class M15
Shear strength at 28 days	EN 1052-3	Declared value	> 1 N/mm²
Chloride ion content (determined on the product in powder form)	EN 1015-17	≤ 0.05%	< 0.05%
Water capillary absorption	EN 1015-18	Declared value	≤ 0,2 kg/(m² · $min^{0,5}$)
Permeability to water vapour (µ)	EN 1745	table value	from 15 to 35
Thermal conductivity ($\lambda_{10, dry}$)	EN 1745	table value	0,82 W/(m K)
Reaction to fire	EN 13501-1	Euroclass	A1
	Test Method	**Requirements of standard EN 1504-3 Class R1**	**Performance in PCC conditions**
Compressive strength:	EN 12190		
- after 7 days		None	> 10 N/mm²
- after 28 days		≥ 10 N/mm²	> 15 N/mm²
Flexural tensile strength after 28 days	EN 196/1	None	> 5 N/mm²
Adhesive bond after 28 days	EN 1542	≥ 0.8 N/mm²	> 0.8 N/mm²
Elastic modulus under compression after 28 days	EN 13412	None	9 GPa
Thermal compatibility with freeze/thaw cycles with de-icing salts	EN 13687-1	visual inspection	value exceeded
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**	**Performance**
Adhesion to masonry after 28 days	EN 1015-12	None	> 1 N/mm²

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).

Warning

→ 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

Kerakoll Quality System ISO 9001 CERTIFIED IT10/0327

Kerakoll Quality System ISO 45001 CERTIFIED 18586-I

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