Geocalce G Antisismico

Large-grain, breathable structural geo-mortar made from pure natural NHL lime and geo-binder – Class M15. Specific for use as a fine-grain mineral concrete to be used with electro-welded meshes in certified structural reinforcement, improvement and seismic adaptation systems. Suitable for consolidation and repair of masonry works. Certified to improve the safety of buildings.

Geocalce G 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.

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)

Siliceous Washed Natural River Sand (0.1 – 1 mm)

Selected Dolomitic Limestone (0-2,5 mm)

Pure Fine White Carrara Marble (0 – 0.2 mm)

Areas of application

→ Intended use:
Geocalce G Antisismico is ideal for the breathable structural reinforcement of masonry elements, as a structural mortar and/or as a breathable fine-grain concrete for internal and external use in combination with electro-welded mesh, steel reinforcement bars and Steel Dryfix and Steel Helibar 6 stainless steel helical bars for structural reinforcement and for improvement or seismic upgrade. Suitable for consolidation and repair of masonry works. Geocalce G Antisismico can be used to build new walls and to repair damaged masonry facings, respecting the mechanical performance levels required for the existing wall.
Specific as a binder to prepare lime based concretes, guaranteeing passivation of the reinforcing bars without damaging them. Where capillary moisture rising is present, complete the cycle with Benesserebio.
It is suitable for building substrates for laying glued covering materials, for internal and external applications.

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 G 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 G 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 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. Use running water not subject to the influence of outside temperatures.
Geocalce G Antisismico has the same plasticity of the best natural limes, making it ideal for applications using a plaster sprayer. Tests to prove the compliance of Geocalce G Antisismico were carried out using a plaster sprayer and the following accessories: Mixer, Stator/Rotor D6-3, 25x37-mm flexible hoses, 10-20 m long and spray gun.
Geocalce G Antisimico can be easily applied with a trowel or spray like a normal plaster/render. Prepare the substrate, first filling in any fragments if necessary to create a flat, smooth surface. When curing has been completed, wet the substrate until it is fully saturated yet with no excess water on the surface.
For reinforced, structural strengthening, first apply an initial rough-coat of Geocalce G Antisismico that is thick enough to ensure that the surfaces are corrected. Afterward, working over Geocalce G Antisismico while it is still fresh, apply an appropriate electro-welded mesh

Instructions for use

for structural strengthening, making sure that it is perfectly embedded in the mortar layer. Next, create a second layer with Geocalce G Antisismico, making sure that the entire reinforcement system is fully covered; it should lay approximately halfway through the overall thickness of the mortar.
Do not add other components (binders or generic inert materials) to the mix.

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

Special notes

→ Externally, provide for a separation between the floors, walkways or horizontal surfaces in general, to avoid possible capillary draw phenomena.

Certificates and marks

* *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 vaults or flat roofs, 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 0-2.5 mm, GreenBuilding Rating 5 (such as Geocalce G Antisismico by Kerakoll Spa). The natural 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 per coat, 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 G Antisismico: ≈ 14.5 kg/m² per cm of thickness.

Technical Data compliant with Kerakoll Quality Standard		
Appearance	Powder	
Aggregate mineral content	silicate - carbonate	
Grading	0 – 2.5 mm	
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 5.1 l / 1 x 25 kg bag	
Apparent density of wet mortar	≈ 1.76 kg/dm³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1.61 kg/dm³	EN 1015-10
Temperature range for application	from +5 °C to +35 °C	
Maximum thickness obtainable by coat	≈ 1.5 cm	
Coverage	≈ 14.5 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 4092/11.01.02
Active INDOOR AIR QUALITY (IAQ) - Dilution of indoor pollutants *			
	Flow	Dilution	
Toluene	219 µg m²/h	+129%	JRC method
Pinene	170 µg m²/h	+5%	JRC method
Formaldehyde	1040 µg m²/h	test failed	JRC method
Carbon dioxide (CO_2)	33 mg m²/h	+53%	JRC method
Humidity (Humid Air)	15 mg m²/h	+7%	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 En 998-2			
Compressive strength after 28 days	M15 category		EN 998-2
Permeability to water vapour (µ)	from 15 to 35 (table value)		EN 1745

Performance		
Water capillary absorption	≈ 0.3 kg/(m² · $min^{0.5}$)	EN 1015-18
Shear strength	> 1 N/mm²	EN 1052-3
Adhesion to the substrate after 28 days	> 1 N/mm² - FP: B	EN 1015-12
Thermal conductivity (λ10, dry)	0.82 W/(m K) (table value)	EN 1745
Static modulus of elasticity	9.23 GPa	EN 998-2
Conformity	M15 resistance class	EN 998-2
HIGH-TECH en 1504-3		
Compressive strength	> 15 MPa (28 days)	EN 12190
Flexural tensile strength	> 5 MPa (28 days)	EN 196/1
Adhesive bond	> 0.8 MPa (28 days)	EN 1542
Adhesion on clay brick	> 1 MPa (28 days)	EN 1015-12
Modulus of elasticity under compression	9.23 Gpa (28 days)	EN 13412
Thermal compatibility with freeze/thaw cycles with de-icing salts	visual inspection passed	EN 13687-1
Chloride ion content (determined on the product in powder form)	< 0.05%	
Reaction to fire	Euroclass A1	EN 13501-1

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

PREPARATION OF MORTARS FOR SCREED AND CONCRETE

To prepare Geocalce G Antisismico to a damp earth consistency, Geocalce G Antisismico and Kerabuild Ghiaia have been used.

Preparation of screed and concrete

A pre-mix with the following characteristics is prepared:

Preparation	Product	Aggregate	Mixing report	Tools
Screed	100 kg (4 bags) Geocalce G Antisismico	25 kg (1 bag) Kerabuild Ghiaia	13 l water for 125 kg of mix	Compacter
concrete	100 kg (4 bags) Geocalce G Antisismico	25 kg (1 bag) Kerabuild Ghiaia	15 l water for 125 kg of mix	Vibrator

Flexural and compressive strength

Test method compliant with standard EN 1015-11. Speed of increase of the load used 400 N/s, according to Annex B table B.1

PREPARATION OF MORTARS FOR SCREED AND CONCRETE		
SCREED consistency		
Apparent density of wet mortar	1.913 kg/dm³	EN 1015-3
Properties of the hardened screed:		
- volumetric mass (hardened and dry)	1.89 kg/dm³	EN 1015-10
- flexural strength after 28 days	> 5 N/mm²	EN 1015-11
- compressive strength after 28 days	> 20 N/mm²	EN 1015-11
CONCRETE consistency		
Apparent density of wet mortar	2.181 kg/dm³	EN 1015-3
Properties of the hardened fine-grain concrete:		
- volumetric mass (hardened and dry)	2.06 kg/dm³	EN 1015-10
- flexural strength after 28 days	> 7 N/mm²	EN 1015-11
- compressive strength after 28 days	> 25 N/mm²	EN 1015-11
- elastic modulus after 28 days	> 20 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.

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

Kerakoll Spa
via dell'Artigianato 9
41049 Sassuolo - MO

+39 0536.816.511
info@kerakoll.com

www.kerakoll.com