

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 Glass Net CRM systems and electro-welded meshes in certified structural strengthening, seismic improvement and upgrade 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.



Rating 5

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

- ✓ Pollution Reduced
- ✓ Bacteriostatic
- ✓ VOC Low Emission
- ✓ CO₂ Emission ≤ 250 g/kg
- ✓ Recycled Regional Mineral ≥ 30%

Natural Ingredients

	Pure NHL 3.5 certified natural lime		Siliceous Washed Natural River Sand (0,1 – 1 mm)
	Mineral geo-binder		Selected Dolomitic Limestone (0 – 2,5 mm)
	Siliceous washed natural river sand (0.1-0.5 mm)		Pure Fine White Carrara Marble (0 – 0.2 mm)

Areas of application

→ Intended use:

Geocalce G Antisismico is ideal for the breathable structural strengthening of masonry elements, as a structural mortar and/or as a breathable fine-grain concrete for internal and external use in combination with CRM Glass Net systems, electro-welded mesh, steel reinforcement bars and Steel Dryfast stainless steel helical bars for structural strengthening and for seismic improvement or 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. 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.

Geocalce G 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 (2.5 mm) or an indirect mixing pump.

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.

Instructions for use

→ Strengthening of masonry elements with high-thickness widespread plating
For strengthening with Glass Net CRM systems, follow the instructions provided in the technical data sheets of the respective components: Glass Net 315, Glass Net 450 or Glass Net 615.

→ Strengthening of masonry elements with traditional systems
The traditional reinforced structural strengthening will be carried out by applying an electro-welded mesh positioned approximately halfway along the thickness and anchored with steel rods bent into an "L" shape and grouted

to the substrate with Resinglass for a minimum depth of 60 mm or alternatively using Steel Dryfast. Geocalce G Antisismico will then be applied, ensuring that the electro-welded mesh is completely covered. The product can also be applied in several layers, depending on the final thickness required.

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: $\approx 14.5 \text{ kg/m}^2$ 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	≈ 1760 kg/m ³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1610 kg/m ³	EN 1015-10
Temperature range for application	from +5 °C to +35 °C	
Minimum thickness	≈ 1 cm	
Maximum thickness per single layer	≈ 4 cm	
Coverage	≈ 14.5 kg/m ² 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 (CO₂)	33 mg m²/h	+53%	JRC method
Humidity (Humid Air)	15 mg m²/h	+7%	JRC method

Performance			
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 after 28 days	EN 1052-3	Declared value	$> 1 \text{ N/mm}^2$
Chloride ion content (determined on the product in powder form)	EN 1015-17	$\leq 0,05\%$	$< 0,05\%$
Water capillary absorption	EN 1015-18	Declared value	$\leq 0,3 \text{ kg}/(\text{m}^2 \cdot \text{min}^{0,5})$
Permeability to water vapour (μ)	EN 1745	table value	from 15 to 35
Thermal conductivity (10, dry)	EN 1745	table value	$0,82 \text{ W}/(\text{m K})$
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	$> 10 \text{ N/mm}^2$
- after 28 days		$\geq 10 \text{ N/mm}^2$	$> 15 \text{ N/mm}^2$
Flexural tensile strength after 28 days	EN 196-1	None	$> 5 \text{ N/mm}^2$
Adhesive bond after 28 days	EN 1542	$\geq 0,8 \text{ N/mm}^2$	$> 0,8 \text{ N/mm}^2$
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	$\leq 0,05\%$	$< 0,05\%$
Reaction to fire	EN 13501-1	Euroclass	A1
	Test Method	Requirements of standard	Performance
Adhesion to masonry after 28 days	EN 1015-12	None	$> 1 \text{ N/mm}^2$
PREPARATION OF MORTARS FOR SCREED AND CONCRETE			
SCREED consistency			
- Geocalce G Antisismico	100 kg (4 bags)		
- Ghiaia 3.6	25 kg (1 bag)		
- Water	13 l		
- Instrument	Compacter		
Apparent density of wet mortar	$\approx 1910 \text{ kg/m}^3$		EN 1015-3
Properties of the hardened screed:			
- volumetric mass (hardened and dry)	$\approx 1890 \text{ kg/m}^3$		EN 1015-10
- Flexural strength after 28 days	$> 5 \text{ N/mm}^2$		EN 1015-11

Performance		
- Compressive strength after 28 days	> 20 N/mm ²	EN 1015-11
CONCRETE consistency		
- Geocalce G Antisismico	100 kg (4 bags)	
- Ghiaia 3.6	25 kg (1 bag)	
- Water	15 l	
- Instrument	Vibrator	
Apparent density of wet mortar	≈ 2180 kg/m ³	EN 1015-3
Properties of the hardened fine-grain concrete:		
- volumetric mass (hardened and dry)	≈ 2060 kg/m ³	EN 1015-10
- Flexural strength after 28 days	> 7 N/mm ²	EN 1015-11
- Compressive strength after 28 days	> 25 N/mm ²	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.
* 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).
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

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 Kerakoll Technical Customer Service:
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www.kerakoll.com/contatti