

GeoCalce® Multiuso



Certified, universal breathable plaster/finishing coat made of pure natural NHL lime and geo-binder - from 3 to 30 mm. Water-repellent, specific as a levelling plaster/finishing coat for absorbent surfaces or synthetic coverings in the restoration of buildings, the renovation of old façades, and fine Historical Restoration. Ideal for finishing certified structural reinforcement systems created with epoxy or mineral matrix.

GeoCalce® Multiuso is a white geo-mortar, with compressive strength class CS IV under EN 998-1 and Class r1 under EN 1504-3, ideal in GreenBuilding and Historical Restoration. Contains raw materials of only natural origin and recycled minerals. Low CO₂ emissions and very low volatile organic compound emissions. Provides natural ventilation to improve indoor air quality, natural bacteriostatic and fungistatic effect. Recyclable as an inert material at the end of its life.



GREENBUILDING RATING®

GeoCalce® Multiuso

- Category: Inorganic natural minerals
- Repair and reinforcement of reinforced concrete and masonry

Highly effective (4/5)	No development of bacteria or fungi	Very low VOC emissions	CO ₂ /kg emission 99 g	Recycled mineral content 43%

PRODUCT STRENGTHS

- HEALTH AND SAFETY**
 GeoCalce® mortars, the first breathable lime-based structural mortars that ensure high permeability to vapour associated with extremely high efficiency in diluting indoor pollution for better air quality, used in conjunction with Kerakoll reinforcement systems, make it possible to increase the mechanical resistance of the existing walls to improve the structural safety of the building, guaranteeing greater protection for its occupants.
- 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 and a compatibility between the mechanical strengths of mortars and the characteristic strengths typical of masonry structures of all types.
- 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, providing designers with lime-based mortars with the mechanical characteristics of structural mortars necessary to comply with current requirements to protect against seismic events.
- Bacteriostatic and fungistatic product (CSTB method)****

NATURAL INGREDIENTS

	Pure NHL 3.5 certified natural lime		Siliceous Washed Natural River Sand (0,1-1 mm)
	Mineral geo-binder		Selected Dolomitic Limestone (0-1,4 mm)
	Siliceous washed natural river sand (0,1-0,5 mm)		Pure Fine White Carrara Marble (0-0,2 mm)

AREAS OF USE

Use

GeoCalce® Multiuso is an all-purpose ready-to-use geo-mortar suitable for smoothing, levelling, and plastering any type of absorbent or non-absorbent substrate with thickness varying from 3 to 30 mm per individual coat. Applicable by hand or machine. Internal, external. GeoCalce® Multiuso is well suited as finishing coat and as plaster/render in Historical Restoration, in which the all-natural components guarantee compliance with the crucial levels of porosity, hygroscopicity and breathability required. GeoCalce® Multiuso is especially well suited as plaster/render or high-thickness finishing coat on Kerakoll certified structural reinforcement systems. GeoCalce® Multiuso is ideal for creating protective systems for brick and cement floors subject to break-away of the bottom layer and for brick walls with returning problems, paired with the basalt fibre and GeoSteel Grid 200 stainless steel mesh or the Geo Grid 120 basalt fibre mesh or the AR fibreglass and Rinforzo ARV 100 aramid mesh.

GeoCalce® Multiuso is ideal for finishing:

- plaster/render, concrete, plasterboard
- old synthetic coatings
- mosaics and ceramic tiles
- glazes and paints
- squaring up of rooms, recesses and doorjamb

GeoCalce® Multiuso is ideal for levelling:

- Thicknesses from 3 to 30 mm
- hollow clay blocks, thermal insulation blocks, cellular concrete, concrete, old masonry
- partial reconstructions of plaster/render

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

AREAS OF USE

GeoCalce® Multiuso is ideal for rebuilding:

- modern and historic masonry
- to repair lesions, grout gaps, execute break-fill techniques on masonry
- to fix thresholds, repair steps
- to fix roof tiles, cover ridges and chimneys

Do not use

On gypsum and anhydrite substrates, plastic materials, wood, or metals; substrates subject to movement, on substrates with moisture rising present.

INSTRUCTIONS FOR USE

Preparation of substrates

The substrate must be compact and clean, free of dust, mould, or flaking/crumbling parts. Clean the surfaces by sand-blasting or sanding until achieving a surface roughness equal to level 5 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 or GeoCalce® G Antisismico and the fragment-filling and/or break-fill techniques to rebuild missing sections of the wall and restore an even surface. Absorbent substrates must be wetted until fully saturated, leaving a saturated substrate with no excess water on the surface.

Non-absorbent substrates must be dry.

Preparation and application

GeoCalce® Multiuso is prepared by mixing one 25-kg bag with clean water in the quantities shown on the packaging. The paste is made by pouring the water into a clean container and adding the powder gradually. Quickly mix by working manually or with a low-*rev*, mechanical stirring device until a smooth and lump-free mortar is obtained.

If using a standard cement 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. Use running water not subject to the influence of outside temperatures. Do not add other components (binders or generic inert materials) to the mix.

GeoCalce® Multiuso 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® Multiuso 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® Multiuso 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 until it is fully saturated, leaving a saturated substrate with no excess water on the surface.

GeoCalce® Multiuso is applied by hand with a trowel or by machine like a traditional plaster/render; as a finishing coat or levelling layer it is spread using toothed spreader over a prepared and dampened substrate pressing firmly in the first coat and with a sponge or smoothing layer in the final coat.

Protective systems for brick and cement floors subject to break-away of the bottom layer and for brick walls with overturning problems

Low-thickness widespread strengthening systems are created in the following phases:

- laying a first layer of GeoCalce® Multiuso, approximately 3 - 5 mm thick;
- with mortar that is still fresh, lay the basalt fibre and GeoSteel Grid 200 stainless steel mesh, or Geo Grid 120 basalt fibre mesh, or AR fibreglass and Rinforzo ARV 100 aramid mesh, making sure that the mesh is fully impregnated, and preventing the formation of any voids or air bubbles that can compromise the adhesion of the mesh to the matrix or the substrate;
- insert dry connection systems, if any, created with Steel DryFix® stainless steel helical bars;
- execution of the second layer of GeoCalce® Multiuso, approximately 3 - 5 mm thick, in order to fully incorporate the reinforcing mesh and fill any underlying voids;
- repetition of steps (a) and (b) as needed for all subsequent reinforcing layers called for by the design.

Cleaning

GeoCalce® Multiuso is a natural product and tools can be cleaned with water before the product hardens.

ABSTRACT

Creation of very high breathability white water-repellent plaster/finishing coat for internal and external walls with pure NHL 3.5 natural-lime-based mortar and geo-binder, siliceous sand inert materials and Dolomitic limestone in 0 - 1.4 mm granulometric curve, GreenBuilding Rating® 5 (such as GeoCalce® Multiuso). The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, make the plaster/finishing extremely breathable (coefficient of resistance to water vapour μ 15), with natural thermal conductivity (equal to 0.54 W/(m K)). The natural plaster/finishing must also meet the requirements of standard EN 998/1 - GP / CS IV / W1 and EN 1504/3, adhesion ≥ 0.1 N/mm², A1 class reaction to fire. The plaster/finishing will be no thicker than 30 mm per coat. To be applied by hand or using a plastering machine.

Coverage: as plaster/render ≈ 13 kg/m² per cm thickness, as finishing coat ≈ 1.3 kg/m² per mm 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	≈ 5.3 ℓ / 1 x 25 kg bag	
Apparent density of wet mortar	≈ 1.73 kg/dm ³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1.3 kg/dm ³	EN 1015-10
Temperature range for application	from +5 °C to +35 °C	
Min. thickness	≥ 3 mm	
Maximum thickness obtainable by coat	≈ 30 mm	
Coverage:		
- as a plaster	≈ 13 kg/m ² per cm of thickness	
- as a finishing coat	≈ 1.3 kg/m ² per mm 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 7829/11.01.02

ACTIVE INDOOR AIR QUALITY (IAQ) - DILUTION OF INDOOR POLLUTANTS *

	Flow	Dilution	
Toluene	234 µg m ² /h	+57%	JRC method
Pinene	137 µg m ² /h	test failed	JRC method
Formaldehyde	3886 µg m ² /h	+25%	JRC method
Carbon dioxide (CO ₂)	135 mg m ² /h	+93%	JRC method
Humidity (Humid Air)	26 mg m ² /h	+21%	JRC method

BIOACTIVE INDOOR AIR QUALITY (IAQ) - BACTERIOSTATIC ACTION **

Enterococcus faecalis Class B+ no proliferation CSTB method

BIOACTIVE INDOOR AIR QUALITY (IAQ) - FUNGISTATIC ACTION **

Penicillium 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 998-1

Water vapour permeability coefficient (µ) 13 EN 1015-19

Water absorption through capillary action W1 category EN 998-1

Porosity ≥ 40% WTA 2-2-91/D

Reaction to fire class A1 EN 13501-1

Compressive strength after 28 days Category CS IV EN 998-1

Adhesion to support (hollow clay block) ≥ 1 N/mm² - FP : B EN 1015-12

Thermal conductivity (λ_{10, dry}) 0.54 W/(m K) (table value) EN 1745

Durability (freeze/thaw) evaluation based on regulations applicable to mortar in the country of use EN 998-1

HIGH-TECH EN 1504-3

Compressive strength ≥ 10 MPa (28 days) EN 12190

Flexural tensile strength ≥ 4 MPa (28 days) EN 196/1

Adhesive bond ≥ 1 MPa (28 days) EN 1542

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% EN 1015-17

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

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

The Rating classifications refer to the GreenBuilding Rating® Manual 2013. This information was last updated in November 2020 (ref. GBR Data Report - 1220); 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.



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