Biocalce® Rinzaffo

Certified, eco-friendly, natural mortar containing pure NHL 3.5, EN 459-1 compliant lime for highly breathable, WTA-approved rough-coat rendering of masonry, ideal for use in GreenBuilding and Historical Restoration. Contains raw materials of only natural origin. Low CO_2 emissions and very low volatile organic compound emissions. Provides natural ventilation to improve indoor air quality, naturally bacteriostatic and fungistatic effect. Recyclable as an inert material at the end of its life.

Biocalce® Rinzaffo is specifically intended for levelling and grip-coating before final plastering/rendering. Highly breathable and saline-resistant, also ideal for preparing masonry affected by rising damp.

GREENBUILDING RATING®

Biocalce® Rinzaffo
- Category: Inorganic Natural Minerals
- Class: Natural, breathable mortars for plaster/render coats and restoration
- Rating: Bio 4

bio 4	Pollution Reduced Indoor Air Quality	Bacteriostatic Indoor Air Quality	Low Emission Indoor Air Quality	CO_2 ≤ 250 g/kg	Recycled Regional Mineral ≥ 30%
	✓	✓	✓	✓	
	High efficiency (4/5)	No development of bacteria or fungi	Very low VOC emissions	CO_2/kg emission 112 g	

PRODUCT STRENGTHS

- Natural, porous and highly breathable, allows walls to breath
- Superior grip on all types of masonry
- Evens out the level and absorption of the wall
- WTA-tested and approved as a natural grip-coating mortar in the restoration of damp masonry

NATURAL INGREDIENTS

Pure NHL 3.5 certified natural lime	Siliceous Washed Natural River Sand (0,1-1 mm)
Certified micronized natural pozzolan	Coarse grain Dolomitic limestone (0,5-3 mm)
Siliceous washed natural river sand (0,1-0,5 mm)	

AREAS OF USE

Use
Breathable rough coat for interior and exterior hollow clay block, brick, tufa, stone, and mixed-material load-bearing masonry structures and infill masonry, before the application of Biocalce® plasters.
Biocalce® Rinzaffo is particularly well suited to create levelling rough coats and undercoats in Edilizia del Benessere® in which the all-natural ingredients guarantee compliance with the required levels of porosity, hygroscopicity and breathability.
Biocalce® Rinzaffo is suitable for promoting the adhesion of breathable BIOCALCE plasters to stone/cobblestone and deteriorated substrates in Historic Restoration, where the choice of traditional materials such as natural lime, natural pozzolan, stone, marble and granite, mixed in carefully studied proportions, guarantees conservative interventions in full respect of the existing structures and original materials. Biocalce® Rinzaffo has been tested and certified as a WTA-approved mortar rough coat to restore damp and salt-damp, above-ground walls before the application of Biocalce® Zoccolatura restoration plaster.

Do not use
On substrates which are dirty, non-cohesive, powdery or on previous paint coats and finishing coats. Remove interstitial salt scaling from surfaces.

INSTRUCTIONS FOR USE

Preparation of substrates
The substrate must be clean and solid, free from loose debris, dust and mould. Clean the surfaces using hydro-sandblasting or sandblasting followed by a pressure washer to remove all remaining traces of previous processes (lime putty coverings, old finishing coats, saline formations, etc.) that may impair adhesion. Remove inconsistent rendering mortars from between the stones. Biocalce® Rinzaffo can also be used with 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 a rough coat.

Biocalce® Rinzaffo Code: B601 2011/03 EN

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INSTRUCTIONS FOR USE

Preparation
Manual application: to prepare Biocalce® Rinzaffo, mix one 25 kg bag with about 4.8 l of clean water.
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 mortar is obtained. Use all of prepared mixture; do not reuse it in subsequent mixings. Store the product in places protected against the heat in summer months and against the cold during the winter. Use running water not subject to the influence of outside temperatures.
Adding cement in any quantity would impair the quality of the mortar which is guaranteed by its all-natural origins.
Mechanized application: Biocalce® Rinzaffo has the same fine grain and plasticity of the best natural hydraulic limes, making it ideal for applications using a plaster sprayer. The excellent consistency of the wet mixture which absorbs the typically coarse grain size of mortar undercoats means the product can be applied using plastering machines at long ranges. Mixing and pumping tests were carried out on Biocalce® Rinzaffo using a plaster sprayer and the following accessories: Mixer, Stator 30, Rotor 30+, Turbo-stator, Turbo-rotor, 25x37 mm flexible hoses, length 15/30 m and spray gun.

Application
Biocalce® Rinzaffo can be easily applied with a trowel or spray like a normal rough coat mortar. Apply the rough coat so that it partially covers surfaces of clay block walls (full, hollow or channelled flat tile) or fully covers tufa, mixed material or non-absorbent walls.
Apply Biocalce® Rinzaffo by spraying with precision directly onto clean and previously damped substrates in a single coat. Always check adhesion of the rough coat before plastering/rendering. This traditional system of application prevents the formation of micro-cracks in subsequent plaster layers. Patch layers should be done once the rough coat has hardened. Allow the hardened product to cure and keep it moistened during the first 24 hours.

Cleaning
Biocalce® Rinzaffo is a natural product and tools can be cleaned with water before the product hardens.

SPECIAL NOTES

Mix Biocalce® Rinzaffo into a soft consistency but in line with the indicated amount of water, making sure that too much is not used as this could considerably reduce adhesion.
Always wait for Biocalce® Rinzaffo to harden before applying any subsequent plaster coats.

ABSTRACT

In Edilizia del Benessere® (Building for Wellness), a large-grain rough mortar coat is created to prepare interior and exterior walls using exclusively natural raw materials such as pure 3.5 NHL 3.5/NHLZ 5 binder, natural micronized pozzolan, inert siliceous sand and Dolomitic limestone materials with a granulometric curve of 0-2.5 mm, and GreenBuilding Rating Bio 4 (such as Biocalce® Rinzaffo).
The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, guarantee total resistance to salts (Table 1- ASTM C 1012-95a ≤ 0.034%).
In Historical Restoration, the required rough coat mortar must be certified WTA-Merkblatt 2-2-91 Sanierputzsysteme, having satisfied the requirements through the sole use of all-natural materials. The rough coat mortar must also meet the requirements of standard EN 998/1 - GP / CS III / W1, adhesion 0.7 N/mm², A1 class reaction to fire.
The rough coat must be on average 10 mm thick, applied in a single rustic-finish anchoring layer, applied by hand or using a plastering machine.
Coverage Biocalce® Rinzaffo: ≈ 15 kg/m² per cm of thickness.

TECHNICAL DATA COMPLIANT WITH KERAKOLL QUALITY STANDARD

Type of mortar	general purpose rendering/plastering mortar (GP)	EN 998-1
Chemical nature of binder	pure Natural Hydraulic Lime NHL 3.5/NHLZ 5	EN 459-1
Grading	0 – 2,5 mm	EN 1015-1
Apparent density of powder	≈ 1,34 kg/dm³	UEAtc
Shelf life	≈ 12 months in the original packaging	
Pack	Bags 25 kg	
Mixing water	≈ 4.8 ℓ / 1 x 25 kg bag	
Consistency of wet mortar	≈ 197 mm	EN 1015-3
Apparent density of wet mortar	≈ 1,85 kg/dm³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1,66 kg/dm³	EN 1015-10
pH of the mixture	≥ 12	
Temperature range for application	from +5 °C to +35 °C	
Minimum thickness obtainable	≈ 5 mm	
Coverage	≈ 15 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.

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PERFORMANCE

VOC INDOOR AIR QUALITY (IAQ) - VOLATILE ORGANIC COMPOUND EMISSIONS			
Conformity	EC 1 GEV-Emicode		GEV certified 2747/11.01.02
ACTIVE INDOOR AIR QUALITY (IAQ) - DILUTION OF INDOOR POLLUTANTS *			
	Flow	Dilution	
toluene	137 µg m^2/h	test failed	JRC method
Pinene	150 µg m^2/h	+5%	JRC method
Formaldehyde	3281 µg m^2/h	+5%	JRC method
Carbon dioxide (CO_2)	77 mg m^2/h	+10%	JRC method
Humidity (Humid Air)	23 mg m^2/h	+6%	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			
Co-efficient of resistance to the diffusion of water vapour (µ)	≤ 20		EN 1015-19
Water absorption through capillary action	W1 Category		EN 998-1
Depth of water infiltration	1 hr ≥ 5 mm		EN 1015-18
Depth of water infiltration	24 hrs ≥ 20 mm		EN 1015-18
Reaction to fire	class A1		EN 13501-1
Compressive strength after 28 days	CS ***III*** category		EN 998-1
Adhesion to support (hollow clay block)	≥ 0,7 N/mm^2 - **FP**: B		EN 1015-12
Resistance to sulphates (Table 1 ≤ 0.034%)	exceeded		ASTM C 1012-95a
Thermal conductivity (λ_{10}, dry)	0,83 W/mK (table value)		EN 1745
Thermal conductivity (λ_{10}, dry)	0,57 W/mK (calculated in a Klimaroom thermal chamber)		EN 1934
Specific heat capacity (Cp)	1,62 (10^6 J/m^3K) measured with heat exchange analyser		
Durability (freeze/thaw)	evaluation based on regulations applicable to mortar in the country of use		EN 998-1
Radioactivity index	**I** = 0,27		UNI 10797/1999

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 cement-based plaster/render (1,5 cm).*

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

WARNING

- Product for professional use
- protect surfaces from direct sunlight and wind
- sandblast or hydro-sandblast walls subject to rising damp
- dampen walls before application
- if necessary, ask for the safety data sheet
- for any other issues, contact the Kerakoll Worldwide Global Service - globalservice@kerakoll.com

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