

Biocalce® Zoccolatura

Certified, eco-friendly natural plaster made with pure natural lime NHL 3.5 according to EN 459-1, for highly breathable and rendering of the base of walls, ideal for use 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.

Biocalce® Zoccolatura is specifically intended for the restoration of masonry with signs of blistering, erosion and peeling caused by exposure to atmospheric aggression and the disintegrating effect of saline concentrations caused by rising damp.



GREENBUILDING RATING®

Biocalce® Zoccolatura
 - Category: Inorganic natural minerals
 - Mortars, plasters/renders and natural decoration

Highly effective (5/5)	No development of bacteria or fungi	Very low VOC emissions	CO ₂ /kg emission 76 g	Recycled mineral content 53%

PRODUCT STRENGTHS

- Natural, porous and highly breathable, allows walls to breath
- High resistance to salts, high evaporation capacity, low capillary draw

NATURAL INGREDIENTS

	Pure NHL 3.5 certified natural lime		Siliceous Washed Natural River Sand (0,1-1 mm)
	Certified micronized natural pozzolan		Selected Dolomitic Limestone (0-2,5 mm)
	Siliceous washed natural river sand (0,1-0,5 mm)		

AREAS OF USE

Use
 Breathable restoration and protective plaster/render coat for damp or salt-damp vertical walls made of hollow clay blocks, brick, tufa, stone and mixed material, in internal and external applications.
 Specifically intended for the restoration of external plinths subject to staining, blistering, erosion and peeling caused by permanent exposure to atmospheric aggression and the disintegrating effect of saline concentrations caused by rising damp.
 Biocalce® Zoccolatura is particularly well suited to create dehumidifying plaster/render coats and plinths in Edilizia del Benessere® in which the all-natural ingredients guarantee compliance with the required levels of porosity, hygroscopicity and breathability.
 Biocalce® Zoccolatura is suitable for natural, breathable restoration in Historical Restoration projects: 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.

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
 Remove all previous render and plaster coats from walls or plinths up to 50 cm above the visible signs of damp. Remove rendering mortars and stone blocks or bricks that are crumbling or flaky due to saline concentrations. 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

* 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).

INSTRUCTIONS FOR USE

coats, saline formations, etc.) that may impair adhesion. Use Biocalce® Muratura and the fragment-filling or break-fill techniques to rebuild missing parts of the masonry work, run plumbing and electrical wires etc. and seal off the chases.

Preparation

Manual application: to prepare Biocalce® Zoccolatura, mix one 25 kg bag with about 5.3 l of clean water 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 mortar forms. 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® Zoccolatura 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 product gained WTA certification, also extended to mechanized application. Tests to prove the compliance of Biocalce® Zoccolatura with WTA specifications were carried out using a plaster sprayer and the following accessories: Mixer, Stator 30, Rotor 30+, Turbo-stator, Turbo-rotor, rotoquirl worm mixer, 25x37 mm flexible hoses, length 10/20 m and spray gun.

Application

Biocalce® Zoccolatura 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. Use Biocalce® Rinzafo as a rough coat and allow the mortar to dry fully. Create the levelling layers, plaster, flatten then float as the product hardens. In restoration plasterwork, apply the plaster up to 50 cm above the visible signs of damp in a layer at least 2 cm thick. Biocalce® Zoccolatura should be applied with precision, each coat being no more than 2 cm thick even though the product lends itself easily to form thicker coats. This traditional system of application prevents the formation of micro-cracks. Only apply patch layers to Biocalce® Rinzafo or on previous coats when the lower has hardened. The finishing will depend on the technique selected. Allow the hardened product to cure and keep it moistened during the first 24 hours.

Cleaning

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

SPECIAL NOTES

When plastering walls of different ages, or walls with sections that have been clad in different materials, we recommend inserting a galvanized or synthetic anti-alkali plaster-reinforcing mesh into the Biocalce® Zoccolatura to rule out any chance of cracking. Always apply Biocalce® Rinzafo on all substrates in order to improve adhesion, regulate absorption and prevent migration of salts into the fresh plaster.

Externally, provide for removal of the render and finishing from floors, walkways or horizontal surfaces generally subjected to water splash and/or temporary standing water.

Walls made of cellular concrete blocks should be prepared as indicated by the manufacturer: do not dampen or rough cast these surfaces. Prepare them before plastering by applying Biocalce® Fondo consolidant-absorption unifier with a brush or roller. Furthermore, when working on cellular concrete walls, always insert Rinforzo V 50 reinforcing mesh between the two coats of finishing product, made with either Biocalce® Intonachino Fino or Granello.

ABSTRACT

In Edilizia del Benessere®, a highly porous, breathable, hygroscopic, protective dehumidifying layer with reduced capillary water absorption is created for interior and exterior walls subject to high humidity and rising damp, using pure NHL 3.5 natural hydraulic lime, extra-fine natural pozzolan, siliceous sand inert materials and Dolomitic limestone with a granulometric curve of 0-2.5 mm, and GreenBuilding Rating® 5 (such as Biocalce® Zoccolatura). The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, make the plaster extremely breathable (co-efficient of resistance to water vapour ≤ 3), the hardened mortar extremely porous (≥ 40%), with natural thermal conductivity (equal to 0.47 W/(m K)), a high degree of occluded air during mixing (≥ 25%), total resistance to salt (WTA 2-2-91/0 exceeded) and less water penetration (≤ 5 mm in 24 hrs). The natural plaster must also meet the requirements of standard EN 998/1 - R / CS II / W24 ≥ 0.3 kg/m², adhesion 0.06 N/mm², A1 fire classification class. The plaster covering must be at least 20 mm thick, 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 Biocalce® Zoccolatura: ≈ 12 kg/m² per cm of thickness.

TECHNICAL DATA COMPLIANT WITH KERAKOLL QUALITY STANDARD

Type of mortar	rebuilding/restoration mortar (R)	EN 998-1
Chemical nature of binder	pure Natural Hydraulic Lime NHL 3.5	EN 459-1
Grading	0 – 2,5 mm	EN 1015-1
Apparent volumetric mass	≈ 1.36 kg/dm ³	UEAtc
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	
Consistency of wet mortar 0'	≈ 174 mm	EN 1015-3
Consistency of wet mortar 15'	≈ 173 mm	EN 1015-3
Apparent density of wet mortar	≈ 1.48 kg/dm ³	EN 1015-6
Apparent density of dry, hardened mortar	≥ 1.42 kg/dm ³	EN 1015-10
Water retention	≥ 85%	DIN 18555-7
Occluded air / Plastering machine occluded air	≥ 25%	EN 413-2
Temperature range for application	from +5 °C to +35 °C	
Minimum thickness obtainable	≈ 2 cm	
Maximum thickness obtainable by coat	≈ 2 cm	
Coverage	≈ 12 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 2757/11.01.02
ACTIVE INDOOR AIR QUALITY (IAQ) - DILUTION OF INDOOR POLLUTANTS *		
	Flow	Dilution
Toluene	356 µg m ² /h	+138%
Pinene	374 µg m ² /h	+162%
Formaldehyde	4677 µg m ² /h	+49%
Carbon dioxide (CO ₂)	341 mg m ² /h	+386%
Humidity (Humid Air)	48 mg m ² /h	+126%
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		
Water vapour permeability coefficient (µ)	≤ 3	EN 1015-19
W24 capillary water absorption	≥ 0,3 kg/m ²	EN 1015-18
Depth of water infiltration in 24 hrs	≤ 5 mm	EN 1015-18
Porosity	≥ 40%	WTA 2-2-91/D
Reaction to fire	class A1	EN 13501-1
Compressive strength after 28 days	CS II category	EN 998-1
Adhesion to support (hollow clay block)	> 0.1 N/mm ² - FP: B	EN 1015-12
Compressive/flexural strength ratio	≤ 3	WTA 2-2-91/D
Resistance to salts	exceeded	WTA 2-2-91/D
Thermal conductivity (λ _{10, dry})	0.47 W/(m K) (table value)	EN 1745
Specific heat capacity (Cp)	1,43 (106 J/m ³ K) 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 = 0.145	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

- abide by any standards and national regulations
- protect surfaces from direct sunlight and wind
- sandblast or hydro-sandblast walls subject to rising damp
- 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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