

Biocalce Muratura

Certified, eco-friendly, natural mortar containing pure NHL 3.5, EN 459-1 compliant lime for highly breathable, rough coating and fragment-filling of masonry.

Biocalce Muratura is an M5 class mortar specifically intended for the breathable building, recovery, and fragment-filling of load-bearing masonry structures and clay, brick, tuff, stone, and mixed-material infill masonry. Internal, external.



Rating 5

1. Class M5 resistant (compressive strength 50 kg/cm²)
2. Natural, porous and highly breathable, allows walls to breath
3. Long workability and adjustment times when laying new or recovered blocks and bricks
4. Soft, malleable mixture for fast, easy spreading

- ✓ 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
(0.1-0.5 mm)



Siliceous Washed Natural River Sand
(0,1-1 mm)



Selected Dolomitic Limestone
(0-1,4 mm)



Pure Fine White Carrara Marble
(0-0,2 mm)

Areas of application

→ Use

Breathable building, recovery and fragment-filling of interior and exterior hollow clay block, brick, tufa, stone, and mixed-material load-bearing masonry structures and infill masonry. Biocalce Muratura is particularly well suited as a construction, renovation and restoration mortar in Edilizia del Benessere (Building for Wellness) in which the all-natural ingredients guarantee compliance with the required levels of porosity, hygroscopicity and breathability.

Biocalce Muratura is suitable for reconstruction work in Historical Restoration projects, where the choice of traditional materials such as natural lime, 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 dirty, non-cohesive, powdery substrates with interstitial salt deposits.

Instructions for use

→ Preparation of substrates

Masonry structures must be clean and solid, free from loose debris, dust and mould. Old walls must be carefully cleaned and remaining traces of previous processes removed (lime putty coverings, old finishing coats, etc.) as well as any interstitial salt deposits which could impair adhesion. Remove inconsistent rendering mortars from between the stones. Use Biocalce Muratura 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 reconstruction work with Biocalce Muratura.

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.

→ Preparation

To prepare Biocalce Muratura, mix one 25 kg bag with about 4.4 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

→ Application

Biocalce Muratura is easy to apply using a trowel, as with traditional mortars, or with a plaster sprayer connected to a mortar pump. Always wet substrates before reconstruction work with Biocalce Muratura.

Apply the mortar using a trowel to create the mortar bed then place the building block into it, pressing lightly with circular movements until it is correctly aligned and at the right depth; remove any excess mortar on the front of the masonry using the trowel.

→ Cleaning

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

Special notes

→ Allow the mortar to dry fully before placing loads on load-bearing masonry structures. dampen bricks before placing. Always lay a full mortar bed, allowing the mortar to flow through

joints during adjustment. Use a trowel to remove the excess mortar and leave the remaining level flush with the wall.

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

In Edilizia del Benessere (Building for Wellness) and Historical Restoration, fragment-filling, break-fill work and internal and external masonry structures, made of hollow clay block, brick, tufo, and natural stone, are done using a compact, highly breathable and hygroscopic mortar made of pure 3.5 natural hydraulic lime with siliceous sand inert materials and Dolomitic limestone with a granulometric curve of 0-2.5 mm, and GreenBuilding Rating 5 (such as Bionalce Muratura). The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, guarantee a reduced chloride content ($\leq 0.05\%$ Cl). The natural mortar must also meet the requirements of standard EN 998/2 - G / M 5, initial shear strength ≥ 0.2 N/mm², adhesion to support ≥ 0.5 N/mm², capillary water absorption ≈ 0.7 kg/(m² · min^{0.5}), A1 class reaction to fire. Including the superior workmanship required to assure the structural integrity of walls, corners and indented panels, the flattening of the mortar bed, cutting required to create openings in door/window posts and any other recesses and embedding needed to place windows and doors of any size in position, including the cost of general scaffolding (mobile platforms and trestle) for work at heights of up to 3.5 m, and anything else needed to complete the project to the highest standard. Application can be done by hand or by machine. Coverage Bionalce Muratura: ≈ 1.7 kg/dm³.

Technical Data compliant with Kerakoll Quality Standard

Type of mortar	performance-guaranteed masonry mortar for general purpose use (G) in external applications subject to structural requirements	EN 998-2
Chemical nature of binder	pure Natural Hydraulic Lime NHL 3.5	EN 459-1
Grading	0 – 2.5 mm	EN 1015-1
Apparent density of powder	≈ 1.46 kg/dm ³	UEAtc
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	25 kg bags	
Mixing water	≈ 4.4 l / 1 x 25 kg bag	
Consistency of wet mortar	≈ 178 mm	EN 1015-3
Apparent density of wet mortar	≈ 1.94 kg/dm ³	EN 1015-6
Apparent density of dry, hardened mortar	≈ 1.72 kg/dm ³	EN 1015-10
pH of the mixture	≥ 12	
Temperature range for application	from +5 °C to +35 °C	
Coverage	≈ 1.7 kg/dm ³	

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 2750/11.01.02	
Active INDOOR AIR QUALITY (IAQ) - Dilution of indoor pollutants *			
	Flow	Dilution	
Toluene	148 µg m ² /h	+54%	JRC method
Pinene	221 µg m ² /h	+36%	JRC method
Formaldehyde	5015 µg m ² /h	test failed	JRC method
Carbon dioxide (CO ₂)	30 mg m ² /h	+40%	JRC method
Humidity (Humid Air)	16 mg m ² /h	+14%	JRC method
Bioactive INDOOR AIR QUALITY (IAQ) - Bacteriostatic action **			
<i>Enterococcus faecalis</i>	Class B+ no proliferation	CSTB method	
Bioactive INDOOR AIR QUALITY (IAQ) - Fungistatic action **			
<i>Penicillium brevicompactum</i>	Class F+ no proliferation	CSTB method	
<i>Cladosporium sphaerospermum</i>	Class F+ no proliferation	CSTB method	
<i>Aspergillus niger</i>	Class F+ no proliferation	CSTB method	
HIGH-TECH			
Compressive strength	M 5 category	EN 998-2	
Water vapour permeability coefficient (µ)	≥ 15 ≤ 35 (table value)	EN 1015-19	
Water capillary absorption	≈ 0.7 kg/(m ² · min ^{0.5})	EN 1015-18	
Reaction to fire	class A1		
Initial shear strength	≥ 0.2 N/mm ²		
Tensile adhesion to support (clay bricks)	≥ 0.5 N/mm ² - FP: B	EN 1015-12	
Chloride content	≤ 0.05% Cl	EN 1015-17	
Thermal conductivity (λ10, dry)	0.82 W/(m K) (table value)	EN 1745	
Specific heat capacity (Cp)	1.72 (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 998-2	

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
 - protect surfaces from direct sunlight and wind
 - moisten bricks and substrates before application
- 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 July 2023 (ref. GBR Data Report – 07.23); 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 site 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.