Benesserebio

Thermo-dehumidifying, heat cell-based render, R and T / CSII-certified. Anti-mould and anti-condensation compliant with EN ISO 13788. High energy-efficient. Highly breathable. Natural product for bio-building.

Benesserebio render gives your home total protection against moisture and maintains its thermo-evaporating power over time, is warmer, and thermally insulates the wall to allow more efficient indoor climate control and energy savings. Benesserebio uses natural NHL lime improved with Kerakoll's exclusive geo-binder, together with the micronized natural pozzolan protective action against salts.

1. More coverage: Benesserebio ensures a light mixture with high coverage that allows to plaster 55% to 100% more surface
2. More energy saved: the warm render ensures energy savings of 30% compared to traditional masonry
3. Warmer and drier: Benesserebio is able to heat the wall surface by a good 3 °C, thus ensuring the total absence of mould and condensation in indoor environments
4. More thermo-evaporating power: Benesserebio guarantees water disposal, in the form of vapour, from 100% to 250% higher than the common dehumidifying plasters/renders
5. More fire resistant: Benesserebio is fire protective thanks to its volumetric mass
6. Bacteriostatic and fungistatic product (CSTB method)*

GREENBUILDING RATING
REF. GBR DATA REPORT 07.23
APPROVED

Rating 5

- ✓ Pollution Reduced
- ✓ Bacteriostatic
- ✓ VOC Low Emission
- ✓ CO_2 Emission ≤ 250 g/kg
- ✓ Recycled Regional Mineral ≥ 30%

kerakoll

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

Natural Ingredients

- Pure NHL 3.5 certified natural lime
- Certified micronized natural amorphous pozzolan
- Mineral geo-binder
- Natural active principles
- Inert minerals
- recycled inert eco-pores

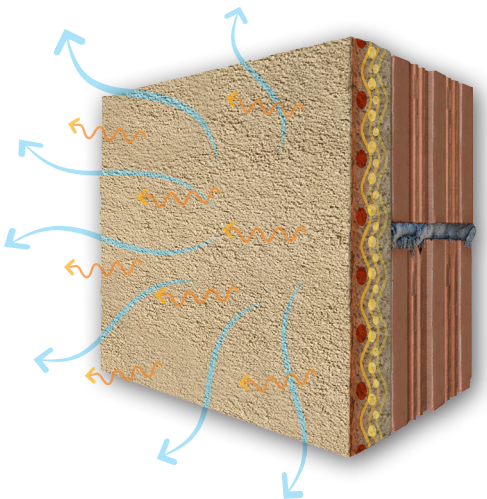
What is the open-pore heat cell technology

→ More thermo-evaporating power – Thanks to the 3 °C thermal gradient between the masonry and the surface of the render, and the innovative heat cells high porosity, Benesserebio develops an unprecedented thermo-evaporating power to ensure the thermo-dehumidification of all types of masonry and all types of humidity.

→ Warmer surface – Thanks to the innovative heat cell technology, the render surface heats up to 3 °C more, restoring comfort and well-being to the home and its inhabitants.

→ More energy savings - The thermostatic and porous surface of Benesserebio keeps the heat in winter and preserves summer cooling. Thanks to the innovative heat cells, the thin layer of render works like a thermal micro-panelling system for the masonry and significantly improves the energy efficiency of the house.

→ Anti-mould and anti-condensation compliant – A 3 °C increase of the surface temperature of the render permanently prevents the risk of the formation of mould and internal condensation. Benesserebio is the certified and safe solution to restore comfort and well-being to your home.



Areas of application

→ Universal, hot render for breathable, protective plastering/rendering of load-bearing masonry structures and infill masonry, for all types of walls: brick, tuff, stone, concrete, cellular concrete*, wood-cement and mixed walls, for internal and external use.
Benesserebio guarantees the benefits of thermo-dehumidification that specifically targets damp and moisture rising from condensation. It reduces the heat lost through masonry, stopping deterioration caused by heat dispersal or mould.

Benesserebio is particularly well suited to create plasters/renders in Greenbuilding, where its all-natural ingredients guarantee compliance with the required levels of hygroscopicity, porosity and breathability.
Benesserebio is suitable in Historical Restoration projects, where the choice of traditional materials such as natural lime, natural amorphous pozzolan, stone, marble and granite, 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. In underground environments subject to water infiltration.

Exclusively applied as thermal render

Instructions for use

→ Preparation of substrates
The support must be clean and solid, free from loose debris, dust and mould that might compromise the adhesion. Remove inconsistent rendering mortars from between the stones. Restore the concrete surface and roughen it to a depth of at least 5 mm, equivalent to level 8 of the Test kit for preparation of reinforced concrete and masonry substrates
- Preparation of damp substrates: on damp walls or in the presence of capillary moisture rising, completely remove the old plaster up to one metre above the highest visible signs of damp. Remove interstitial salt scaling from surfaces. Remove rendering mortars and stone blocks or bricks that are crumbling or flaky due to saline concentrations. Perform a thorough cleaning of the surfaces using hydro-sandblasting or sandblasting followed by thorough pressure washing, to be carried out 12 hours before applying the plaster/render. The careful preparation must completely remove residues of previous operations, old plasters and finishing coats, salt formations, dirt or any element that may compromise the adhesion.

According to the mechanical strength required, use mortars from the Biocalce or Geocalce ranges and the fragment-filling or break-fill techniques to rebuild missing parts of the masonry work and restore an even surface, run plumbing and electrical wires etc. and seal off the chases. Always wet substrates before applying the product.

→ Preparation
Prepare Benesserebio by mixing 1 bag with the amount of water indicated on the packaging (we advise using the whole bag). 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. Mix again 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.

→ Application
When used as an all-purpose hot render, Benesserebio can be applied up to a maximum of 4 cm per single coat. Only apply subsequent patch layers when the lower layer, left rough, has hardened.
In the presence of capillary moisture rising, the correct thermo-dehumidification of the masonry is obtained by applying a first layer of Benesserebio at least 1 cm-thick to cover the entire masonry. Wait for the curing of the first layer for about 1 - 2 days, depending on the temperature and humidity conditions. After the first layer has cured, apply the second coat of Benesserebio to obtain a constant minimum total thickness of 2 cm. Flatten/level and float as the product hardens.
If a skirting board is to be installed, before preparing Benesserebio, apply a 1 cm-thick covering rough coat of Geocalce G Antisismico or Geocalce F Antisismico mortar directly on

Instructions for use

the damp masonry. The coat has to be at least twice the height of the skirting board. Wait for the Geocalce G Antisismico or Geocalce F Antisismico to fully cure for approximately 1-2 days before applying Benesserebio. If the original masonry clearly shows salt deposits such as crusts or salt efflorescence, apply a first coat of Biocalce Rinzaffo after carefully dry brushing the surface.
Application on tuff: on soft surfaces such as compact tuff blocks, first apply a coat of Biocalce Rinzaffo before applying Benesserebio.
Once Benesserebio has properly cured, it is recommended to apply a reinforced finishing coat by inserting a fibreglass mesh between the first and second coat of the selected Biocalce finishing product.

Carry out dehumidification to a height of about 1 metre above the highest visible signs of damp.

- Manual application: Benesserebio can be easily applied with a trowel or spray like a normal plaster/render.
- Mechanized application: Benesserebio is ideal for applications using a plaster sprayer. It is recommended to use a plastering machine and the following accessories: Mixer, Stator/Rotor D 6-3, 25x37-mm flexible hoses, 10-20 m long and spray gun.

→ Cleaning
Benesserebio is a natural product and tools can be cleaned using water before the product hardens.

Special notes

→ If Benesserebio is to be used to prepare the masonry with a proper rough coat, it is recommended to apply the product in a thickness of ≈ 1 cm.
→ When working outdoors, leave sufficient space at the base of the render from floors, walkways or horizontal surfaces in general subject to water splash and/or temporary standing wate.
Finish Benesserebio with the finishing mortar from the Biocalce range.
→ The finished surfaces will then be ready to receive the coloured decoration to be determined within the range of coloured breathable finishes of Biocalce or, alternatively, with the Kerakover Eco Silox range.
→ When rendering walls of different ages, or walls with sections that have been clad in different materials, it is recommended to insert a galvanized or synthetic anti-alkali plaster-reinforcing mesh into Benesserebio to rule out any chance of cracking; particular attention must be paid to guaranteeing continuous thickness between the meshes.
→ 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.

Certificates and marks

S-P-01642 EPD environdec.com · EN ISO 13788 ANTI-CONDENSATION ANTI-MOULD · NHL 3.5 EN 459-1 NATURAL HYDRAULIC LIME · HEALTH RADON FREE NATURAL POZZOLAN · HEALTH NATURAL BACTERIOSTATIC · CE EN 998-1 NATURAL PLASTER · JRC EUROPEAN COMMISSION TEST METHOD INDOOR AIR QUALITY

GEV-EMICODE EC 1 PLUS very low emission · CSTB le futur en construction · eco 1 · ÉMISSIONS DANS L'AIR INTÉRIEUR* A+ A+ A B C

* *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 Greenbuilding and Historical Restoration the all-purpose plastering/rendering for water evaporation, thermal improvement of the masonry, will be carried out with a highly porous, hygroscopic, breathable plaster/render with reduced capillary water absorption for internal and external walls, especially if subject to damp, moisture rising and heat dispersal. NHL 3.5 pure hydraulic natural lime-based render, mineral geo-binder, recycled inert eco-pores, extra-fine natural amorphous pozzolan and inert minerals with a 0 – 1.4 mm grain size curve, GreenBuilding Rating 5 (such as Benesserebio by Kerakoll Spa). The required characteristics, obtained exclusively through the use of raw materials of all-natural origin, make the plaster/render extremely breathable (co-efficient of resistance to water vapour μ 5), the hardened mortar extremely porous (≥ 40%), with natural thermal conductivity (equal to 0.14 W/mK), a high degree of occluded air during mixing (≥ 25%), total resistance to salt (WTA 2-2-91/D test passed) and less water penetration (≤ 5 mm in 24 hrs). The natural render satisfies the requirements of standard EN 998/1 – R – T / CS II / W24 ≥ 0.3 kg/m², adhesion ≥ 0.1 N/mm², A1 class reaction to fire. The render, including levelling layers, rustic finish coat done with flattener, squaring up of edges and corners, must be at least 20 mm thick and applied in two coats. To be applied by hand or using a plastering machine. Coverage Benesserebio ≈ 6,5 kg/m² per cm of thickness.

Technical Data compliant with Kerakoll Quality Standard		
Type of mortar	rebuilding/restoration and heat-insulation mortar (R – T)	EN 998-1
Pure chemical nature of binder	- pure Natural Hydraulic Lime NHL 3.5	
	- Geo-binder	
	- extra-fine natural amorphous pozzolan	
Grading	0 – 1.4 mm	EN 1015-1
Apparent volumetric mass	≈ 0.75 kg/dm³	UEAtc
Shelf life	≈ 12 months from production in the original sealed packaging, protect from humidity	
Pack	bags 18 kg	
Mixing water	≈ 6 l / 1 bag 18 kg	
Apparent density of wet mortar	≈ 0.85 kg/dm³	EN 1015-6
Apparent density of dry, hardened mortar	≥ 0.70 kg/dm³	EN 1015-10
Water retention	≥ 95%	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	1 cm – 2 cm for dehumidification	
Maximum thickness obtainable by coat	≈ 4 cm	
Coverage	≈ 6.5 kg/m² per cm of thickness	

Values taken at +23 °C, 50% R.H. and no ventilation. Data may vary depending on specific conditions at the building site, i.e.temperature, ventilation and absorbency level of the substrate and of the materials laid.

Performance			
VOC Indoor Air Quality (IAQ) - Volatile organic compound emissions			
Conformity	EC 1 plus GEV-Emicode		GEV Certified 8667/11.01.02
Active INDOOR AIR QUALITY (IAQ) - Dilution of indoor pollutants *			
	Flow	Dilution	
Toluene	319 µg m²/h	+114%	JRC method
Pinene	327 µg m²/h	+130%	JRC method
Formaldehyde	3458 µg m²/h	+11%	JRC method
Carbon dioxide (CO_2)	350 mg m²/h	+399%	JRC method
Humidity (Humid Air)	46 mg m²/h	+117%	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			
Water vapour permeability coefficient (µ)	5		EN 1015-19
W24 capillary water absorption	≥ 0,3 kg/m²		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/mm² - FP: B		EN 1015-12
Resistance to sulphates (Table 1 ≤ 0.034%)	exceeded		ASTM C 1012-95a
Thermal conductivity (λ10, dry)	0,14 W/(m K)		EN 1745
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

Kerakoll Spa
via dell'Artigianato 9
41049 Sassuolo - MO

+39 0536.816.511
info@kerakoll.com

www.kerakoll.com