PALLADIO®
BI 21

Eco-friendly breathable natural plaster based on NHL 5 natural hydraulic lime

Product description

PALLADIO BI 21 is an eco-friendly transpiring natural plaster based on natural hydraulic lime NHL 5, MICROCALCE CL 90-S aerial lime and selected calcium carbonate aggregates with a grain size of up to 2.00 mm, suitable for the mechanical formation of new or existing plasters. PALLADIO BI 21 presents in its chemical-physical formulation, as main binder, PALLADIO CALCE NATURA, a natural hydraulic lime NHL 5 obtained from the firing at low temperatures of clay limestone (natural marl). The main mineralogical constituent is the bi-calcium □ silicate which, reacting with the mixing water, develops stable hydrated compounds capable of giving the mortar mechanical characteristics and elasticity such as to guarantee its durability over time. Thanks to its particular mineralogical nature, it is not reactive in the presence of sulphates and allows to reproduce, from a physical, chemical and mineralogical point of view, the characteristics of the original bedding mortars based on binders obtained from low temperature firing of clayey limestone. PALLADIO CALCE NATURA is a binder free from tricalcium silicate and tricalcium aluminate, typical constituents of Portland cement. Its nature is summarized on average in the following table indicating the chemical composition expressed in oxides: CaO 62%; MgO 1%; Al2O3 5%; K2O 0.7%; Na2O 0.3%; Fe2O3 3.5%; SiO2 21%. PALLADIO BI 21 presents in its chemical-physical formulation also the aerial lime MICROCALCE CL 90-S, micronized lime hydrate with high purity (lime flower) CL 90-S according to UNI EN 459-1, cement free, with low content of water soluble salts, high breathability and controlled shrinkage. The presence of the binder MICROCALCE CL 90-S in the mixture of the product PALLADIO BI 21 guarantees a perfect compatibility for a use on new or existing masonry, even historical protected.

I dati riportati si riferiscono alle prove di Controllo Qualità in condizioni ambientali normalizzate. Applicazioni pratiche di cantiere a seconda delle condizioni di esercizio possono rilevare dati sensibilmente modificati, pertanto le informazioni presenti nella Scheda hanno valore puramente indicativo in quanto l'utilizzatore deve sempre verificarne l'idoneità nell'impiego del prodotto assumendosi la responsabilità derivante dall'uso. Fornaci Calce Grigolin S.p.A. si riserva di apportare modifiche tecniche di qualsiasi genere senza alcun preavviso.

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PALLADIO BI 21 complies with the UNI EN 998-1 standard regarding “Specifications for mortars for masonry work - Mortars for internal and external plasters” and is subject to CE marking with reference to current regulations.
PALLADIO BI 21 is a product that can be applied to internal or external brick, stone, pebble and tuff walls.
PALLADIO BI 21 is a cement-free product with a low content of water-soluble salts, high breathability and excellent controlled shrinkage. The binder/inerte ratio and the selected particle size curve of the calcium carbonate aggregate allow for an adequate reduction in shrinkage, high thixotropy and excellent workability, while maintaining ideal characteristics of breathability and hygro-thermal regulation of the masonry.

Supply and storage

PALLADIO BI 21 is supplied in bulk with a 22 m3 silo system and in bags on pallets with extensibility.
Store in a cool, dry and non-ventilated place. Keep packaging intact.

Fields of application

PALLADIO BI 21 is an ideal product for the formation of plaster by means of a plastering machine on new walls made of perforated brick or solid brick.
PALLADIO BI 21 is an ideal product for the reinstatement or renovation of plaster, by means of a plastering machine, on existing masonry (also historical bound) in mixed stone, brick or tuff.

Substrate preparation and application methods

For the formation of new plaster on new solid or perforated brickwork according to the following method:

1. Wet the substrate to be treated with clean water;
2. On existing concrete elements in the masonry to be treated, application of a rendering/adhesion/absorption regulator bridge performed with PALLADIO RB 22 for a minimum average thickness of 0.5-0.8 cm to completely cover the surface. At the end of this phase, the surface must be adequately roughened to ensure adequate adhesion of the next layer.
3. Application of a first coat of PALLADIO BI 21 for a minimum average thickness of 0.5-0.8 cm to completely cover the masonry to be treated.
4. Application, the following day, of the body of the plaster using PALLADIO BI 21, in one or more coats depending on the thickness to be applied and respecting the waiting time between coats for the product to cure properly;
5. When the body of the plaster has matured, apply any coloured skimming coats and finishes from the PALLADIO line.

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www.fornacigrigolin.it
info@fornacigrigolin.it
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The following application method is recommended for reinstating or rebuilding existing plaster:

1. Removal of damaged plaster until the original masonry is revealed without damaging the existing masonry structure;
2. Removal of dust and any loose parts remaining after demolition of the existing plaster;
3. Sandblasting of the masonry or washing with running water to remove dust and any saline deposits (one or more washing cycles if necessary);
4. On existing concrete elements in the masonry to be treated, application of a rendering/adhesion/absorption regulator bridge performed with PALLADIO RB 22 for a minimum average thickness of 0.5-0.8 cm to completely cover the surface. At the end of this phase, the surface must be adequately roughened to ensure adequate adhesion of the next layer.
5. When the masonry is dry, make a first preliminary coat with PALLADIO BI 21 in order to regularize the support in anticipation of the application of the body of the plaster. In this phase must be evaluated the consistency of the surface where to apply the product, and in the case of inconsistent and flaking surfaces, it is recommended to apply a spray or brush coat of PALLADIO CONSOLIDANTE before the application of PALLADIO BI 21.
6. Application, the following day, of the body of the plaster by means of PALLADIO BI 21, in one or more coats according to the thickness to be applied and respecting the waiting time between one coat and the other for the correct curing of the product;
7. When the body of the plaster has matured, apply any coloured skimming coats and finishes from the PALLADIO line.

Specification item

Natural transpiring eco-friendly plaster, type PALLADIO BI 21, based on NHL 5 PALLADIO CALCE NATURA natural hydraulic lime, MICROCALCE CL 90-S aerial lime and selected calcium carbonate aggregates with a grain size of up to 2.00 mm, in compliance with UNI EN 998-1 regarding the “Specifications for mortars for masonry work - Mortars for internal and external plastering” and subject to CE marking with reference to current regulations, ideal for the formation of plaster on new perforated brick or solid brick masonry by means of a plastering machine, for the reinstatement or rebuilding of plaster on existing masonry (including historic bound masonry) in mixed stone, brick or tuff, having the following characteristics specific weight 1450 kg/m3 deter.in free fall; maximum diameter 2.00 mm; mechanical resistance to flexion at 28 days 0.8 N/mm2; mechanical resistance to compression at 28 days. (cat. CS II) 2.0 N/mm2; permeability to water vapour μ 6; adhesion to brick 0.5 N/mm2; reaction to fire A1; thermal conductivity 0.36 W/mK.

Warnings

Do not mix BI 21 with other substances. Avoid large temperature fluctuations during the setting phase. The product should be protected against frost and rapid drying. It is not recommended to use BI 21 at temperatures below +5°C and above +30°C.
Please note that exposure to atmospheric agents, rain, high humidity, low ambient temperature, of surfaces treated with this product, can generate bleaching phenomena of the finish during the carbonation process. This phenomenon may be irreversible in particularly extreme conditions.
After application of this product, outdoor surfaces must be protected from rain and moisture until the product is completely dry, which normally (at 20°C) occurs after about 72 hours.

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TECHNICAL DATA according to standard UNI EN 998-1	PERFORMANCE
Specific weight	1450 kg/m3 free fall deter.
Maximum diameter	2 mm
Workability time on brick	20 min.
Mixing water	22% approx.
Mechanical flexural strength at 28 days	0.8 N/mm2
Comp. mechanical res. at 28 days (cat. CS II)	2.0 N/mm2
Plastic collection	Ass. in standard thermo-hygric conditions
Theoretical consumption	14 kg/m2 for 1 cm thickness
Water vapour permeability μ	6
Reaction to fire	class A1
Minimum thickness of application	1.5 cm
Adhesion on brick	0.2 N/mm2
Type of fracture	B
Water absorption	W0
Thermal conductivity λ	0.36 W/mK (tabulated value)

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