



Dehumidifying render - natural hydraulic lime NHL and ECO-POZZOLAN.

IS IT:

Product

Technology

Equipment

APPLICABLE FOR:

Restoration

Rehabilitation

New Construction

APPLICABLE ON:

1. Foundations and underground structures

2. Vertical structures

3. Horizontal structures and vertical connections

4. Roof and terraces

5. Façade and building envelope

6. Finishes and completion elements

7. Integrated services

8. General strategies for building recovery

Related companies: No companies; university research; structural study.

DESCRIPTION

This is a lightweight undercoat plaster based on lime and expanded perlite, for interior and exterior surfaces. It also contains microfibers and other additives, which confer high plasticity, strong adhesion to building surfaces and good volume stability.

WHY TO USE

Ideal for plastering interior and exterior surfaces of stone and earth/straw substrates (adobes, mudbricks) as well as surfaces to be hagiographed. It is also used to repair defects of existing plaster (detachment, cracking, crumbling, powdering, loss of plaster).

HOW TO USE AND APPLY

First all substrates should be clean, free of dust, oil, residues of other building materials, etc.

MIXING:

The lime plaster undercoat must be mixed with water using a low-speed electric mixer until a homogeneous mixture is produced. Depending on the desired consistency, a homogeneous and free of lumps mixture should be achieved. All equipment and containers should be clean, free of dust and/or Residues of previous mixtures so as to not adversely affect the setting time and the mechanical properties of the product. Extended mixing should be avoided, in order to decrease the possibility of crashing the perlite granules. The pot life of the mixture is at least 50 minutes, depending on weather conditions.

APPLICATION:

The lime plaster undercoat is applied directly to the surface using a trowel or a float. It is recommended to apply the product by using level guides (or not, depending on the nature of the substrate).

The initial setting time is 70-80 minutes, but the surface remains workable for a few days, if sprayed with water. Then a wooden or plastic float is used for rubbing the surface. After 24hrs, the surface can be made smooth using a spongy or a wooden/plastic float or with a steel

trowel. The same procedure should be followed the following day, if required, to obtain better results or to correct imperfections and/or capillary cracks that may have occurred.

It is important that the plaster is sprayed with water systematically for 5-6 weeks after its application.

The product presents highly susceptible to weather variations during its application. Hot weather or exposure to direct sunlight, may result to premature loss of moisture and/or cracks, so it is advisable that special care is taken so as to prevent adverse effects. The recommended ambient air temperatures for the application are between +5°C and +35°C. During winter or periods of low temperatures (5-10°C), it is advisable that warm water (approx. 30°C), is used for the mixing and if possible, the application to be performed during noon time. On the contrary, cool water (approx. 20°C) should be used for the mixing during summer and generally at ambient temperatures exceeding or expected to exceed 35°C.

TECHNICAL CHARACTERISTICS

Mixing Lime Plaster with water initiates the carbonation procedure, forming crystals of calcium carbonate. This procedure is very slow and may take up to several months, due to the low presence of carbon dioxide (CO₂) in the air. Systematically spraying the surface of the plaster with water, results in disruption of the already formed crystals and their recrystallization to a new, higher strength crystal structure, which improves the mechanical properties of the plaster.

Premature painting of the surface with non-permeable paints may result in the slowing down of this procedure. For practical purposes, lime plaster should remain unpainted for several months, depending on weather conditions.

Indicative technical specifications:

Thermal conductivity (λ_{dry}) : $\leq 0,16$ W/mk

Water Vapor permeability coefficient : $\mu 10$

Flexural Strength : $\geq 0,2$ N/mm²

Adhesion strength : 0,1 N/mm²



RECOMMENDATIONS AND OTHER INFORMATION

Cement, gypsum, or any other materials should not be added to the supplied product as this may negatively affect the efficiency of the product.

The product should not be prepared in extreme weather conditions, such as direct sunlight and strong winds.

All time-sensitive products must be stored in dry sheltered places, on wooden pallets.

EXAMPLES

N/A

REFERENCES / SOURCES AND LITERATURE

Pachta, V., Papadopoulos, F., & Stefanidou, M. (2019). Development and testing of grouts based on perlite by-products and lime. *Construction and Building Materials*, 207, 338–344.

<https://doi.org/10.1016/j.conbuildmat.2019.02.157>

Young, D. (2020). Lime mortars for the repair of masonry (Heritage Technical Code HTC 1:2020; p. 34). Heritage Council of Victoria, Department of Environment, Land, Water and Planning.

Holmes, S and Wingate, M (2002) *Building with Lime: A Practical Introduction*, 2nd edn, London: Intermediate Technology Publications

Historic Scotland (2006) Technical Advice Note 1 – Preparation and use of Lime Mortars Available online: <https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=3d5fbef1-8a1e-4945-a41e-a5c201034e56>

The Building Lime Forum
<http://www.buildinglimesforum.org.uk>

WEBSITE OF THE COMPANY

<https://www.peletico.com/en/building-materials/lime-based-plasters/item/lime-plaster>

www.peletico.com

<https://www.mapei.com>



IMAGES AND CAPTIONS



Fig.1: A screed mixer with small blades that force the components together in a way not achieved by normal rotary cement mixers. ©Young, D. (2020)



Fig.2: Sand-slaking can be undertaken on a board or in a forced action or roller pan mixer. ©Young, D. (2020)



Fig.3: Application of the material on an adobe wall.

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