



Pure Natural Lime
NHL 3.5

NHL 3,5 is a pure white high-resistant ST ASTIER Pure Natural Hydraulic Lime, produced using the use of selected siliceous limestones. The baking of the limestones is carried out in vertical ovens at a temperature below 1250°C and reduced in powder by only the breakdown of calcium oxide, without the need for grinding. **NHL 3,5** is totally free of pozzolanic materials, blast furnace slags, flying ash or hydraulic binders of any kind (clinker, cement, etc.), VOCs and according to Standard UNI EN 459-1.



FEATURES

The use, as the only binder, of the Pure Natural Hydraulic Lime **NHL 3,5** for the production of mortars and plasters make these products biocompatible in full respect for man and the environment. The complete absence of salts, chemicals, volatile organic compounds combined with the total mineral nature of the components, guarantees the purity, non-toxicity, non-harmfulness and the total recyclability. The specific characteristics of Pure Natural Hydraulic Lime **NHL 3,5**, such as the slow hardening process, the continuous increase in mechanical strength, coupled with a low elastic modulus, give elasticity to the manufactured articles, making them different from those laid with lime or cement based products. The use of **NHL 3,5** allows working in perfect affinity with the building rules of the ancient art of the Restoration as well as in Green building.

The porosity of Natural Hydraulic Lime **NHL 3,5** guarantees high water vapour diffusion, gives breathability to the substrate, allows the disposal of absorbed water and regulates environmental humidity avoiding the formation of

dangerous condensation and moulds. The high basicity of the mixture whose pH is equal to 12.5 makes the surfaces impregnable from biodeteriogenic agents and prevents their proliferation, generating hostile conditions for the survival of pathogenic micro organisms (bacteria, fungi, viruses) causing infections, diseases or allergic reactions. Products obtained with the only **NHL 3,5** binder, being totally mineral; do not constitute "special waste".

FIELDS OF APPLICATION

The Pure Natural Hydraulic Lime **NHL 3,5** can be used directly on the construction site as the only binder for above ground masonry mortars, such as bed or stucco mortars, in injection consolidation works, for structural mortars with meshes of **TCS Consolidation Line**, traditional plasters and such as subbase or flooring screeds. Mortars and plasters obtained using the Pure Natural Hydraulic Lime **NHL 3,5** can be directly applied on vertical and horizontal surfaces consisting of solid bricks, hollow blocks, lightweight hollow blocks, mixed brick, stones and tuff. For all those compact or poorly absorbent surfaces (concrete blocks, expanded clay pebbles, concrete cells, surfaces with a rough lime or cement based layer, reinforced concrete structures, magnesium wood) the use of lime plaster **NHL 3,5** prepared on the construction site will have to be preceded by the application of **SPRIZZO** Ponte di Adesione.

APPLICATION

For the preparation of mortar on the construction site with Pure Natural Hydraulic Lime **NHL 3,5** it is essential to use a washed aggregate and free of deliquescent materials, screened with a continuous grain size arc depending on the type of work to be carried out. The nature of the aggregate may be of siliceous, carbonate or opus signinum type.

The plaster laying consists of Pure Natural Hydraulic Lime **NHL 3,5** must be preceded by the preparation of the substrate: if the surface is compact or slightly absorbent, the application must be preceded by **SPRIZZO** Ponte di Adesione; for masonry with rising damp the use of **SPRIZZO ANTISALE** is recommended.

If the substrate is dry, it should be suitably wet except for the surfaces already treated with repairing and restoration mortar **SPRIZZO ANTISALE**. The spreading of mortars and plasters packed on the construction site with **NHL 3,5** can be done both manually with a float and trowel or bucket plastering machine, and mechanically with the aid of traditional peristaltic pump or screw plastering machine. The application thickness will be assessed according to the aggregate used.

When applying multiple layers, wait until the previous one has lost a large part of the mixture water and the surface is not compact. If the previously coated plaster layer of **NHL 3,5** is already dry, proceed with proper wetting of the substrate before applying the following layer. This operation will allow keeping the new layer workable and will ensure perfect adhesion to the underlying layer.

In order to contain any cracking phenomena which may occur in the zones of geometrical discontinuity or the nature of the substrate it is recommended to place an alkali resistant fibreglass mesh **TCS GLASS CK 100**. The mesh will be laid in the last cm of the plaster. The ratio between Pure Natural Hydraulic Lime **NHL 3,5** and aggregates can vary from 250 kg/m³ to 350 kg/m³ according to the type of intervention implemented or the specific technical requirements of the construction site.

FINISHES

The use of a product of the **TCS Finishing Line** constitutes the natural completion of a compatible cycle with the substrate, particularly with regard to the characteristics of breathability and permeability. The use of the **TCS Finishing Line** products, made of **Lime putty CL 90** or **Potassium Silicate**, is the obligation to fulfil the expectations of aesthetic and performance features at the basis of the **TCS** product choice.

TECHNICAL DATA

PRODUCT TYPE: Pure Natural Hydraulic Lime NHL 3,5 UNI EN 459-1

COLOUR: White Brightness Index 73

FINENESS 90 micron: 6,6%

FINENESS 200 micron: 0,48%

CHEMICAL ANALYSIS: CaO: 56%; SiO₂ insolubile: 9,6%; SiO₂ Combined: 12%; Al₂O₃: 1,66%; Fe₂O₃: 0,49%; SO₃: 0,45%; MgO: 0,98%; MnO: 0,01%; TiO₂: 0,16%; K₂O: 0,16%; Na₂O: 0,06%.

MIXTURE pH: >12,5

APPARENT DENSITY: aprox. 625 kg/m³

FREE LIME Ca(OH)₂: 32%

EXPANSION: 0,5 mm

COMPRESSIVE STRENGTH 7 DAYS: 2,90 MPa

COMPRESSIVE STRENGTH 28DAYS: 8,20 MPa

PENETRATION: 21 mm

LOSS ON IGNITION: 18%

CURING TIME: 4,5 h

FIRE REACTION (EN13501-1): A1 class

COVERAGE: aggregate 250-350 kg/m³

PACKAGE: 25 kg bag

PALLET: 50 bags kg 1250

STORAGE: keep in dry place for 18-24 months in original package

APPLICATION TEMPERATURE : from + 5°C to +32°C

REACH CLASSIFICATION: See SDS