MAPE-ANTIQUE NHL ECO RESTAURA

Multi-purpose, breathable, cement-free, pure natural hydraulic lime and Eco-Pozzolan mortar with recycled materials applied in layers 3 to 30 mm thick for restoring and levelling off substrates, render and coatings





CE EN 998-1 — IN COMPLIANCE WITH EUROPEAN STANDARD EN 998-1 GP-CS II MAPEI RENDERING AND PLASTERING MORTAR

CE EN 998-2 — IN COMPLIANCE WITH EUROPEAN STANDARD EN 998-2 T-M2,5 MAPEI MASONRY MORTAR

CONTAINS RECYCLED RAW MATERIAL

CEMENT

AREAS OF USE

Mape-Antique NHL ECO Restaura is a white, multi-purpose, breathable mortar for rebuilding work and for levelling off all types of substrates, render and mineral coatings on all types of buildings and substrates, including those of historic and artistic interest and listed buildings. Applied in a single layer from 3 to 30 mm thick.
May be used for skimming old paintwork or as compensation render on old render and on stone, brick, tuff and mixed masonry.
Breathable pointing and installation mortar for internal and external stone, brick, tuff and mixed masonry, including masonry with an “exposed” finish and masonry of historic and architectonic interest.

Some application examples

- Breathable levelling layers and skim coats on particularly strong lime or lime/cement render before painting.
- Smoothing over walls, including walls painted with washable acrylic and quartz-based paint, plastic coatings, etc., as long as they are sound, clean and well-bonded, and in combination with **Mapenet 150** or **Mapetherm Net** reinforcing mesh.
- Refurbishing and restoring construction features and elements (friezes, column capitals, stringcourses, gables, etc.).
- Pointing “exposed-finish” stone, brick and tuff masonry.
- Patching and plumbing facing walls with gaps and/or uneven surfaces.

TECHNICAL CHARACTERISTICS

Mape-Antique NHL ECO Restaura is a one-component, multi-purpose, cement-free, white coloured rendering, skimming and masonry mortar made from natural hydraulic lime, recycled materials, selected

limestone sand and special additives and microfibres according to a formula developed in the MAPEI Research & Development laboratories.
Mape-Antique NHL ECO Restaura may be applied in layers from 3 to 30 mm thick.
The product complies with EN 998-1 standards and is classified GP: "General purpose mortar for internal/external render", Category CS II. Also, according to EN 998-2, the product is classified as T:"Thin layer masonry mortar", Class M 2,5.

RECOMMENDATIONS

- Do not use **Mape-Antique NHL ECO Restaura** on masonry with rising damp or sulphate salts. In such cases, use a dehumidifying refurbishment cycle from the **Mape-Antique NHL ECO** or **PoroMap Deumidificante**.
- Do not use **Mape-Antique NHL ECO Restaura** for casting into formwork (use **Mape-Antique Colabile** or **Mape-Antique LC** mixed with aggregates of a suitable particle size).
- Do not use **Mape-Antique NHL ECO Restaura** to make consolidating slurry for injection into structures (use **Mape-Antique I**, **Mape-Antique I-15** or **Mape-Antique F21**).
- Do not use **Mape-Antique NHL ECO Restaura** for "reinforced" render (use **Mape-Antique Strutturale NHL**).
- Do not add admixtures, cement or other binders (lime and gypsum) to **Mape-Antique NHL ECO Restaura**.
- Do not apply **Mape-Antique NHL ECO Restaura** if the temperature is lower than +5°C and higher than +35°C.
- Before applying the product make sure the substrate is sound and free of dust.
- Do not use **Mape-Antique NHL ECO Restaura** if there are strong winds and do not apply the product on surfaces exposed to direct sunlight.
- Apply a coat of suitable primer (such as **Primer G** or **Consolidate 8020**) on gypsum-based substrates before applying the product.
- Do not apply thin coats of coloured paint or coating products, otherwise the breathability of **Mape-Antique NHL ECO Restaura** could be affected. Use products from the **Silexcolor** or **Silancolor** lines, lime-based paint or a water-repelling product such as **Antipluviol S** or **Antipluviol W**.

APPLICATION PROCEDURE

Preparation of the substrate

Mape-Antique NHL ECO Restaura may be applied directly on new builds and on existing masonry in stone, brick, tuff and mixed materials, including buildings of artistic of architectonic interest, as long as it is clean and consistent and has no crumbling areas or traces of dust, dirt, mould or soluble salts. If not, remove all loose parts and any material or substance that could affect adhesion of **Mape-Antique NHL ECO Restaura** with hand or power tools. Clean the masonry with low-pressure water jets to remove any efflorescence or soluble salts present on the surface. Repeat this operation several times if necessary. If weak substrates need to be consolidated, apply several coats of **Consolidante ETS, Consolidante 8020** or **Primer 3296** (refer to the relative Data Sheet). Gaps and uneven areas in masonry must be repaired by patching or tacking with **Mape-Antique NHL ECO Restaura**, **Mape-Antique Allettamento** or **Mape-Antique Strutturale NHL** and pieces of stone, brick or tuff with characteristics as similar as possible to the original material. If large surfaces need to be rendered, it is recommended to apply the product with a continuous-feed rendering machine and to place vertical guides on the walls to help apply the specified thickness and achieve the flatness required. On new masonry the substrate must be moistened with water before applying **Mape-Antique NHL ECO Restaura**, whereas existing masonry must be saturated to prevent particularly absorbent substrates drawing water off from the mortar and affecting its final performance properties. Any excess water must be left to evaporate off, so that the masonry is saturated and the surface is dry (s.s.d. condition). Compressed air may be used to speed up this process. If the substrate cannot be saturated with water, it is recommend to moisten it in order for **Mape-Antique NHL ECO Restaura** to adhere correctly. On mixed masonry out of plumb by more than 4-5 cm, which would lead to the layer of render having an irregular thickness, it is recommended to insert Ø 2 mm galvanized mesh with a mesh size of 5 x 5 cm. Fasten the mesh to the masonry with nails, plugs or chemical anchors (such as **Mapefix VE SF**) and leave a small gap between the mesh and the substrate so that it becomes embedded at the mid-point of the render.
If the substrate is irregular and uneven, and on substrates with old paintwork where the layer could be very thin in some areas, it is recommended to embed **Mapenet 150** alkali-resistant glass fibre mesh with a mesh

size 4 x 5 mm (in compliance with ETAG 004 Guidelines) between the first and second layer of **Mape-Antique NHL ECO Restaura**.

Preparation of the product

Mape-Antique NHL ECO Restaura must be prepared in a cement mixer when applied by trowel or in a continuous-feed rendering machine when applied with a pump. Even though this product is suitable for application using hand tools, it is recommended to use a rendering machine for application on large surfaces to obtain a higher yield. Small amounts of the product may be prepared using an electric drill at low-speed with a mixing attachment. Mixing by hand is not recommended.

Application by trowel

After pouring the minimum amount of clean water in the mixer (approximately 5.25 litres for each 25 kg bag of **Mape-Antique NHL ECO Restaura)**, slowly add the powdered mortar in a continuous flow. Mix for approximately 2 minutes and check that the blend is well mixed, even and lump-free, and that any lumps of powder that have stuck to the sides or bottom of the mixer are removed. Add a further amount of water if required up to a total of 5.75 litres per bag, including the water added at the start of mixing. Then mix the **Mape-Antique NHL ECO Restaura** again for a further 1-2 minutes, depending on efficiency to the mixer, to obtain an even, "plastic" and thixotropic mix.
Apply **Mape-Antique NHL ECO Restaura** in layers of up to 30 mm thick with a trowel, starting from the lower part of the masonry.
If **Mape-Antique NHL ECO Restaura** is used as a levelling compound, moisten the substrate slightly spread the product with a flat metal trowel to a thickness of approx. a thickness of approx. 3 mm.

Application with a rendering machine

Pour the contents of the bags of **Mape-Antique NHL ECO Restaura** into the hopper of a continuous-feed rendering machine (such as a PFT G4 or G5, Imer, Putzmeister MP 25, Turbosol or similar) and set the flow-rate at approximately 320 l/h, depending on the type of machine used, until a "plastic" consistency is obtained.
Tests to validate the product were carried out using a Putzmeister MP 25 with the following set-up:

Stator Rotor	Mixer	Hose	Spray lance
D6 Power	Standard	Ø 25 mm, length 15 m	Standard, 14 mm nozzle
D6 - 3			

If the thickness to be applied is more than 30 mm, **Mape-Antique NHL ECO Restaura** must be applied in several layers. Each layer must be applied without tamping the previous layer. It is recommended to render masonry from a distance of approximately 20 cm so that the product is applied uniformly. After applying the mortar, wait a few minutes and level off the surface with an aluminium H-type or blade-type straight edge by going over the surface horizontally and vertically until it is flat. Remove the vertical guides which were previously attached to the wall and fill the gaps with the same mortar.
Whatever application method is employed, finish off the surface of **Mape-Antique NHL ECO Restaura** with a plastic, wooden, sponge float, or with a power float, a few hours after application, according to the surrounding temperature and weather conditions.
Even though **Mape-Antique NHL ECO Restaura** contains products which contrast the formation of micro-cracks, it is good practice to apply the mortar when the walls to be rendered are not exposed to direct sunlight and/or wind. In such cases, such as during hot and/or particularly windy weather, take special care when curing the mortar, especially during the first 36-48 hours. Spray water on the surface or employ other systems to stop the mixing water evaporating off too quickly.



Rebuilding brick masonry



Levelling off and repairing render



Skimming old substrates



Application of the first skim coat of Antique NHL ECO Restaura



Positioning A.R. glass fibre mesh on the first skim coat



Rebuilding a construction feature



Finishing the surface a sponge flat



Coloured finish of a construction element



Painting of rebuilt substrates with Mape-Antique NHL ECO Restaura

FINISH

If a finer-textured finish than the normal tamped finish of **Mape-Antique NHL ECO Restaura** is required, apply a skim coat of a product from the **Mape-Antique FC** range or **Mape-Antique Rasante**, lime or natural hydraulic lime skimming mortars available in various particle sizes. If the surface of the render is to be skimmed and then decorated or protected, use thin layers of a coloured coating product such as **Silexcolor Tonachino** silicate finish or **Silancolor Tonachino** siloxane finish after priming the surface with their corresponding primer (**Silexcolor Primer** or **Silancolor Primer**). As an alternative to the products mentioned above, if just a painted surface is preferred, use **Silexcolor Paint** or **Silancolor Paint** after applying their corresponding primer. Always wait until the render is fully cured, generally 7 days per cm of thickness, before applying thin coats of coloured coating or paint. If the render is not going to be painted or coated, particularly when it will be exposed to rain, it may be protected with a transparent, breathable, water-repellent product such as **Antipluviol S** solvent-based, siloxane resin impregnator or **Antipluviol W** siloxane resin impregnator in water dispersion or alternatively **Consolidante ETS WR** water-repellent consolidating agent based on ethyl silicate.

CLEANING TOOLS

Remove **Mape-Antique NHL ECO Restaura** from tools while still fresh with water. Once hardened cleaning is more difficult and must be carried out using mechanical means.

COLOUR

White.

CONSUMPTION

Approx. 1.40 kg/m² per mm of thickness.

PACKAGING

25 kg bags.

STORAGE

Mape-Antique NHL ECO Restaura may be stored for 12 months when kept in a dry area in its original packaging.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website www.mapei.com.
PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Type of mortar (EN 998-1 EN 998-2):	GP and T
Appearance:	powder
Colour:	white
Maximum size of aggregate(EN 1015-1) (mm):	0.9
Bulk density (kg/m³):	1,580

APPLICATION DATA OF PRODUCT (at +20°C – 50% R.H.)	
Mixing ratio:	100 parts of Mape-Antique NHL ECO Restaura with 21-23 parts of water (5.25-5.75 litres of water every 25 kg bag of product)
Consistency of mix:	plastic-thixotropic
Bulk density of fresh mortar (EN 1015-6) (kg/m³):	1,600
Application temperature:	+5°C to +35°C
Workability time of fresh mortar (EN 1015-9):	≥ 60 mins.
Min. applicable thickness (mm):	3
Max. applicable thickness (mm):	30

FINAL PERFORMANCE: 22% mixing water; mixing procedure EN 1015-2

Performance characteristic	Test method	Requirements according to EN 998-1	Requirements according to EN 998-2	Performance of product
Compressive strength after 7 days (N/mm²):	EN 1015-11	not required	not required	2.10
Compressive strength after 28 days (N/mm²):	EN 1015-11	CS I (from 0.4 to 2.5)) CS II (from 1.5 to 5) CS III (from 3.5 to 7.5) CS IV (≥ 6)	from Class M 1 (> 1 N/mm²) to Class M d (> 25 N/mm²)	2.95 (Category CS II) M 2.5
Flexural strength after 28 days (N/mm²):	EN 1015-11	not required	not required	1.30
Adhesion to substrate (concrete) (N/mm²):	EN 1015-12	declared value and failure mode (FP)	not required	≥ 0.50
Adhesion to substrate (brickwork) (N/mm²):	EN 1015-12	not required	not required	≥ 0.40
Capillary action water absorption (kg/m²):	EN 1015-18	from Category W0 (not specified) to Category W2 (≤ 0,2)	declared value	Wc0 (0.6)
Modulus of elasticity (N/mm²):	EN 13412	not required	not required	< 3,000
Coefficient of permeability to water vapour (μ):	EN 1015-19	declared value	declared value	≤ 15
Thermal conductivity ($\lambda_{10,dry}$) (W/m K):	EN 1745	table value	table value	0.18

Performance characteristic	Requirements according to ETAG 004	Performance of product
Adhesion to old paintwork (5 mm thick) (N/mm²):	> 0.08	0.10

Reaction to fire EN 13501-1:	Euroclass	A1

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.
Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

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