MAPE-ANTIQUE NHL ECO RISANA

One-component, cement-free, salt-resistant, dehumidifying eco-render made from pure natural hydraulic lime, with recycled material for restoring old masonry with rising damp, including masonry of buildings of historical interest

CO_2 FULLY OFFSET PRODUCTS

Mape-Antique NHL ECO Risana is part of the *CO_2 Fully Offset in the Entire Life Cycle* line of products. CO_2 emissions measured throughout the life cycle of products from the Zero line in 2024 using Life Cycle Assessment (LCA) methodology, verified and certified with EPDs, have been offset through the acquisition of certified carbon credits in support of forestry protection projects. A commitment to the planet, to people and to biodiversity. For more details on how emissions are calculated and on climate mitigation projects financed through certified carbon credits, visit the webpage zero.mapei.com.

WHERE TO USE

Restoring brick, stone, tuff and mixed masonry of recent builds and buildings of historical and architectural interest damaged by capillary rising damp. Smoothing and levelling layers with a natural finish on lime-based render deteriorated by atmospheric agents, surrounding environmental conditions or ageing. Restoring masonry damaged by the crumbling effect of sulphates, chlorides and nitrates.

Some application examples

- Internal and/or external macro-porous, de-humidifying render on masonry, including recent builds, with capillary rising damp and saline efflorescence.
- New de-humidifying render or reintegrating old lime and natural hydraulic lime-based render on stone, brick, tuff, and mixed masonry, including on listed buildings or buildings located within a sustainable building zone.
- Dehumidifying renders for masonry in lagoon areas or close to the sea.
- Restoring damaged render on buildings built using low-performance mortar.
- Pointing “exposed finish” stone, brick, and tuff masonry.

TECHNICAL CHARACTERISTICS

Mape-Antique NHL ECO Risana is a pre-blended, cement-free mortar in powder form for mixing macro-porous de-humidifying render. It contains recycled material, selected lime sands, lightweight aggregates, special additives and microfibres according to a formula developed in the MAPEI Research & Development laboratories and has very low emission of volatile organic compounds (EMICODE EC1 Plus). This product is classified as R according to EN 998-1 Standards: "Rendering mortar. Mortar designed for internal/external render applied on damp masonry walls containing water-soluble salts", Category CS II.
When mixed with water in the hopper of a continuous-feed rendering machine or a cement mixer, **Mape-Antique NHL ECO Risana** forms a plastic-thixotropic consistency mortar for macroporous, de-humidifying render which is easy to apply by spray or with a trowel on vertical walls and ceilings. The properties of mortar made from **Mape-Antique NHL ECO Risana**, such as mechanical strength, modulus of elasticity, and porosity, are very similar to those of mortar made using lime, lime-Pozzolan, or hydraulic lime originally used in the construction of old buildings, including those of historical interest. Compared with these types of mortar, however, **Mape-Antique NHL ECO Risana** also has properties that make it resistant to acid rain, the leaching action of rainwater, alkali-aggregate reactions, and soluble salts often present in masonry and in the ground on which they were built. Also, it does not release water-soluble salts and does not provoke the formation of efflorescence. Typical values are shown in the Technical Data table (see Application Data and Final Performance sections) which refer to the main characteristics of **Mape-Antique NHL ECO Risana** at both the fresh and hardened states.

RECOMMENDATIONS

- Apply **Mape-Antique NHL ECO Risana** in layers at least 20 mm thick.
- Do not use **Mape-Antique NHL ECO Risana** for casting into formwork (use **Mape-Antique LC** mixed with suitable aggregates or **Mape-Antique Colabile**).
- Do not use **Mape-Antique NHL ECO Risana** 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 Risana** for "reinforced" render (use **Mape-Antique NHL ECO Strutturale** or **Mape-Antique NHL ECO Strutturale 10**).
- Do not use **Mape-Antique NHL ECO Risana** as skimming mortar (use **Mape-Antique NHL ECO Rasante Civile** or **Mape-Antique NHL ECO Rasante Grosso**).
- Do not add any admixture, cement or other binders (lime or gypsum) to **Mape-Antique NHL ECO Risana**.
- Do not apply thin coats of paint or coloured coating products that could have a high impact on the breathability of **Mape-Antique NHL ECO Risana** and, therefore, obstruct the evaporation of damp from the masonry. Use products from the **Silexcolor** or **Silancolor** ranges of lime-based paint, or a water-repellent treatment such as **Antipluviol S** or **Antipluviol W** if you want to maintain the original finish of the render.
- If the structure to be restored has a high level of capillary rising damp or concentrated soluble salts, it is recommended to apply a horizontal chemical barrier prior to rendering (**Mapestop** or **Mapestop Cream**) to reduce moisture ingress as much as possible.
- **Mape-Antique NHL ECO Risana** continues to carry out its function until all the macro-pores inside the render have been completely saturated. Since the time required to completely saturate the macro-pores depends on the amount of soluble salts in the masonry being restored, it is not possible to foresee the durability of this type of render.
- If the substrate is weak or is in concrete with a smooth finish, it is recommended to treat the surface with **Mape-Antique NHL ECO Rinzaffo** before applying the de-humidifying render.
- If the render needs to be applied on structures below or partially below ground level with a waterproofing system to protect against water infiltrations in counterthrust (**Mape-Antique Ecolastic**), apply a layer of **Mape-Antique NHL ECO Rinzaffo** before applying the **Mape-Antique NHL ECO Risana**.
- Do not apply **Mape-Antique NHL ECO Risana** if the temperature is lower than +5°C.

APPLICATION PROCEDURE

Preparation of the substrate

Completely remove all the old, damaged render with hand or power tools to a height of around 50 cm above the damaged area and, in all cases, to a height of at least twice the thickness of the wall. Also remove all traces of loose or crumbling material, dust, mould, and any other substance or material that could affect the bond of

the **Mape-Antique NHL ECO Risana** until the substrate is clean, sound, and compact. Clean the masonry with low-pressure water jets to remove any efflorescence of soluble salts present on the surface. Repeat this operation several times if necessary. Gaps and uneven areas in the masonry must be repaired by patching or tacking using one of the mortars from the **Mape-Antique, Mape-Antique NHL** or **MapeWall** ranges and pieces of stone, brick, or tuff with characteristics as similar as possible to the original material. Saturate the substrate with water to prevent it from drawing off water from the mortar and compromising its final performance characteristics. 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, we recommend that it is at least wetted to allow the mortar to adhere correctly. On mixed walls or on walls 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 place Ø 2 mm galvanized 5 x 5 cm mesh before applying **Mape-Antique NHL ECO Risana**. Fasten the mesh to the masonry with nails, plugs, or chemical anchors (such as **Mapefix VE SF**) with a gap between the mesh and the substrate so that it becomes embedded in the middle of the finished render.

Preparation of the product

Prepare **Mape-Antique NHL ECO Risana** in the hopper of a continuous-feed rendering machine if applied by spray, or in a vertical cement mixer if the product is to be applied by trowel. Although the product can be applied also manually, it is recommended to apply it using a rendering machine in case of large surfaces, as the yield of the product is improved. 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.
The instructions for the preparation of the mortar to be used for the creation of concrete samples for laboratory tests are reported in the TECHNICAL DATA table.

Application of the product

Application with rendering machine

Pour the contents of the bags of **Mape-Antique NHL ECO Risana** into the hopper of a continuous-feed rendering machine and set the water flow-rate at 310-330 l/h, depending on the type of mixer (rotor/stator) used, until a “plastic” consistency is obtained.
The render may be applied with single-phase or three-phase continuous rendering machines equipped with a mixer (rotor/stator) that is suitable to the maximum nominal diameter of the aggregates in the render, which is mentioned in the product's TDS.
Note: differences may arise compared to the figures in the TECHNICAL DATA (typical values) table included in this TDS, according to the conditions at the time of product application and the rendering machine used.

Application with a trowel

After introducing the minimum amount of clean water into the concrete mixer (approx. 5 litres every 20 kg bag of **Mape-Antique NHL ECO Risana**), slowly add the powder in a continuous flow. Mix for approximately 3 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 more water if required, up to a maximum of 5.4 liters per bag including the water added at the start of mixing. Then mix **Mape-Antique NHL ECO Risana** again for a further 2-3 minutes, depending on the efficiency of the mixer, to obtain an even, “plastic” and thixotropic mix.

Whatever type of application method is used, spread **Mape-Antique NHL ECO Risana** in layers at least 20 mm thick, starting from the bottom of the masonry. If the layer to be applied is thicker than 30 mm, apply **Mape-Antique NHL ECO Risana** in several layers. Each layer must be applied without tamping the previous one. After applying the mortar, wait a few minutes and level off using an aluminium H-type or blade-type straight edge by passing over the surface horizontally and vertically until it is flat. Remove any vertical guides, if they have been used, and fill the gaps with the same product. Finish off the surface of the render with a plastic, wooden, or sponge float a few hours after application, depending on the surrounding temperature and weather conditions. Never press down on the surface of **Mape-Antique NHL ECO Risana**, otherwise, the porosity of the render would be reduced and, as a result, evaporation of the moisture in the masonry would be obstructed. Even though **Mape-Antique NHL ECO Risana** contains products that contrast the formation of micro-cracks, it is good practice to apply the mortar when the wall is 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 prevent the mixing water from evaporating too quickly.

Application of Mape-Antique NHL ECO Risana with a trowel on tuff substrate

Application of Mape-Antique NHL ECO Risana with a trowel on brick substrate

Application of Mape-Antique NHL ECO Risana with a rendering machine

Flattening the surface of Mape-Antique NHL ECO Risana with a straight edge

Levelling off Mape-Antique NHL ECO Risana

Finishing layer

If a finer-grained surface finish than the normal tamped finish of **Mape-Antique NHL ECO Risana** is required, apply a skim coat from the **Mape-Antique NHL ECO Rasante** or **Mape-Antique FC** ranges, which are available in various textures. Even though these products may be applied on any type of render, including macro-porous de-humidifying render, their fine-textured finish tends to slightly reduce the vapour permeability of the render. For structures with high levels of capillary rising damp and high concentrations of soluble salts, it is preferable to use silicate-based **Silexcolor Tonachino** or siloxane-based **Silancolor Tonachino**, coloured coating products applied in thin coats after applying their corresponding primers (**Silexcolor** Primer and **Silancolor Primer**). Always wait until the render is completely cured (approx. 7 days per cm of thickness) before skimming the surface or applying other types of finishes. Paint the surface with **Silexcolor Paint** or **Silancolor Paint** after applying their corresponding primers. If the render is not going to be painted or coated, especially when it will be exposed to rain, it may be protected with a transparent, breathable water-repellent product such as **Antipluviol S** siloxane resin solvent-based impregnating finish or **Antipluviol W** siloxane resin impregnating finish in water dispersion.

CLEANING

Remove mortar from tools with water before it hardens. Once hardened, cleaning is much more difficult and must be carried out mechanically.

PACKAGING

20 kg recyclable paper bags.

CONSUMPTION

approx. 11 kg/m^2 (per cm of thickness).

STORAGE

Mape-Antique NHL ECO Risana can be stored for 12 months in a dry, covered area in its original, unopened 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):	R: Rendering Mortar designed for internal/ external render applied on damp masonry walls containing water-soluble salts
Consistency:	powder
Colour:	ivory
Maximum size of aggregate (EN 1015-1):	2.5 mm
EMICODE:	EC1 Plus - very low emission

APPLICATION DATA (at +20°C – 50% R.H.)	
Mixing ratio:	100 parts of **Mape-Antique NHL ECO Risana** with 25-27 parts of water (5-5,4 litres of water per 20 kg bag of the product)
Consistency of mix:	plastic-thixotropic
Bulk density of wet mortar (EN 1015-6):	1,350 kg/m³
Porosity of fresh mix (EN 1015-7):	> 20%
Application temperature:	from +5°C to +35°C
Workability time of fresh mortar (EN 1015-9):	approx. 60 min.
Minimum applicable thickness:	20 mm
Maximum applicable thickness per coat:	30 mm

FINAL PERFORMANCE (26% mixing water; mixing with a continuous-feed mixer; density 1250 kg/m³)

Performance characteristic	Test method	Requirements according to EN 998-1	Performance of product
Compressive strength after 28 days:	EN 1015-11	CS I (from 0.4 N/mm² to 2.5 N/mm²) CS II (from 1.5 N/mm² to 5.0 N/mm²) CS III (from 3.5 N/mm² to 7.5 N/mm²) CS IV (≥ 6 N/mm²)	1.6 N/mm² Category CS II
Adhesion to substrate:	EN 1015-12	declared value and failure pattern (FP)	≥ 0.20 N/mm² failure pattern (FP) = B
Capillary action water absorption:	EN 1015-18	≥ 0.3 kg/m³ (after 24 h)	≥ 0.3 kg/m³ (after 24 h)
Coefficient of permeability to water vapour:	EN 1015-19	declared value	μ ≤ 15
Thermal conductivity ($\lambda_{10,dry}$):	EN 1745	chart value	0.29 W/m·K (P = 50%)
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.
The values declared in the TECHNICAL DATA table (typical values) were obtained in compliance with test methods and curing cycles defined in the technical standards referenced therein. Therefore, please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.
Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

LEGAL NOTICE

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