



Tectoria M15

ST11-0221

NHL based mortar used for masonry, break-fill, anchoring, plasters and reinforcing castings



DESCRIPTION

Tectoria M15 is a ready-to-use mortar made out of natural, hydraulic lime; fiber-reinforced, it contains entirely recyclable natural materials, fired at low temperatures, reducing emissions and energy consumption. It contains traditional materials with low soluble salt content; when in contact with water it forms hydrated products that are not very soluble and stable, they have basic nature.

It is CE marked according to the requirements of EN 998-2 for masonry mortars class M15 and according to EN 998-1 as a mortar for interior and exterior GP CS IV. It complies with the requirements of CE marking as a type R restoration mortar according to EN 998-1.

ADVANTAGES

- A single low-thickness product for structural reinforcement and dehumidification, it favours the hygrometric comfort of the rooms.
- High breathability, low hydraulic shrinkage.
- Ready-to-use and easy to lay.

USES

Thanks to its high mechanical strength it is used for the consolidation of masonry structures, collaborative castings, FRCM reinforcements, break-fill operations, dehumidifying effects in case of rising damp.

WORKS

- Structural reinforcement with CRM systems consisting of fiberglass mesh A.R. and mortar based on natural hydraulic lime on masonry affected by rising damp ([SA123](#));
- Structural reinforcement of brick, stone and tuff masonry, with FRCM systems consisting of a 200 g/m² basalt fiber mesh and natural hydraulic lime mortar ([SA124](#));
- Structural reinforcement of brick, stone and tuff masonry, with FRCM systems consisting of a 400 g/m² basalt fiber mesh and natural hydraulic lime mortar ([SA125](#)).

APPLICATION

	Manual application		Workability time of fresh mortar: 60 mins
	Mechanical device application		Mixing water: 4,5-4,75 lt/ 25Kg
	Max thickness per coat: 30 mm for vertical application		

Tectoria M15 must be mixed with drinking water (see the table). It is advisable to introduce into the mixer 3 / 4 of water needed, and continuously add the product and the remaining water until the desired consistency is obtained. Mix thoroughly until you get a perfect amalgam. Apply with normal manual or mechanical equipment.

In case of mix with plastering machine (standard type), load it with **Tectoria M15** and regulate the flowmeter to a 5-6 l/min of flow rate, depending on the type of the machine used, until you get the consistency needed.

The setting values referring to mechanised application are the following:

- machine type model PFT G4-G5 and similar,
- pump unit D8,
- tube parameters:
 - diameter d=30mm,
 - length L=15mm.

Apply **Tectoria M15** from a distance of 20 cm, down from up of the masonry, uniformly.

In order to abotain a dehumidifying effect, apply at least a thickness of 2 cm of **Tectoria M15**.

For plaster with thicknesses upper to a 30 mm, the application must be made through coats on the first one which is not troweled. **Tectoria M15** must be laid on clean surfaces, free of dust, flaking parts, varnishes, oil or any other material which could affect a good anchoring.

CONSUMPTION

15 Kg/m²/cm

PACKAGING

Sac. 25 Kg.

STORAGE

Protect from humidity. Store in a dry, sheltered place. Stored in these conditions and in unopened containers, the product remains stable for 12 months.

Characteristics	Value
Appearance	Powder
Colour	Off-white
pH in water dispersion	> 11
Application temperature	+2 - +35 °C
Max dimension of aggregate EN 1015-1	3 mm
Bulk of fresh mortar EN 1015-6	1825 Kg/m ³
Consistency of fresh mortar EN 1015-3	150 mm
Compressive mechanical strength EN 1015-12	in 7 dd > 9 MPa in 14 dd > 12 MPa in 28 dd > 15 MPa
Flexural tensile strength	in 7 dd > 3,8 MPa in 14 dd > 3,9 MPa in 28 dd > 4 MPa

Characteristics	EN 998-2 limits	Value
Elements ratio in weight [%]	Declared value	Binder: 25-35 Aggregates 65-75 Additives: < 1
Chlorides content [%] EN 1015-17		≤ 0,1
Compressive strength in 28 dd EN 1015-11 [MPa]		> 15
Initial shear resistance [MPa] with masonry elements in compliance with EN 771		0,15 [Table]
Capillar water absorption EN 1015-18		0,2
Reaction to fire class		A1
Hazardous substances		See the SDS

Characteristics	Limit value for GP mortars	Value
Dry bulk EN 1015-10	Declared value	1800 Kg/m ³
Mechanical compressive strength in 28dd EN 1015-11	CS I (0,4 – 2,5 Mpa) CS II (1,5 – 5 Mpa) CS III (3,5 – 7,5 Mpa) CS IV (≥ 6 Mpa)	CS IV
Adhesion EN 1015-12	Declared value	> 0,6 N/mm ² - FP: B
Capillar water absorption EN 1015-18	Declared value	W2
Water vapour permeability coefficient	Declared value	μ < 15

EN 1015-19		
Thermal conductivity average values $\lambda_{10, dry, mat}$ EN 1745	Average value as per table (P = 50%)	0,97 W/m ² *K
Reaction class to fire EN 13501 - 1	Declared value	A1
Durability	Declared value	NPD
Hazardous substances	Declared value	See SDS

It is CE marked as a type R restoration mortar according to EN 998-1.

Characteristics	Limit value for R mortars	Value
Dry bulk EN 1015-10	Declared value	1800 Kg/m ³
Adhesion EN 1015-12	Declared value	> 0,6 N/mm ² - FP: B
Capillar water absorption EN 1015-18	≥ 0,3 Kg/m ² dopo 24 h	> 0,3 Kg/m ²
Water penetration after capillar water absorption test EN 1015-18	≤ 5 mm	< 5 mm
Water vapour permeability coefficient EN 1015-19	Declared value	μ ≤ 15
Thermal conductivity average values $\lambda_{10, dry, mat}$ EN 1745	Average value as per table (P = 50%)	0,97 W/m ² *K
Reaction class to fire EN 13501 - 1	Declared value	A1
Durability	Declared value	NPD
Hazardous substances	Declared value	See SDS

WARNING

Product for professional use.

The use of natural raw materials may result in natural color variations from one production lot to another.

If the product is not covered, use only material from the same batch of production and organize the installation in continuity.

Only use enough water to obtain the right mix. Before using, check bags have not been damaged, and do not use the product if there are any lumps.

Use the entire contents once the bag has been opened.

Do not apply the mortar to flaking, loose surfaces: in this case consult our Technical Dpt.

Do not apply at temperatures under +2 °C or above +35 °C, to surfaces in direct sunlight, when it is about to rain, or on windy or misty days.

The manufacturer shall not be liable for any damage to the equipment resulting from an improper use of the material.

Saturate the support before the mortar application so as to avoid that the wall absorbs an excessive amount of mixing

water of the mortar, which could cause its "burning", associated to possible delaminations and cracks.

If it is necessary to lay thick layers of plaster, it is recommended to be made in multiple coats of maximum 3 cm, each one applied after the previous layer has dried, so as to avoid applying excessively thick layers of fresh plaster that might slip during setting, or differences in drying time between the surface and the internal mass that might result in the formation of micro-cracks and a decreased adhesion of the macroporous plaster to the substrate.

It is not recommended that the traditional skimming level method be used, but it is better to use wooden or plastic levels that are removed during the final phase of application.

If the product is used with a dehumidifying function in structures that require structural reinforcement on several floors, we recommend to carry out a reinforced plaster with Tectoria M15 for the whole height of the floor affected by rising damp, so as to ensure the structural continuity of the intervention on the panel. The reinforcement work on the upper floors not affected by rising damp can be carried out with Basic MALTA M15.

If the product is used to make reinforced plasters with non-traditional meshes (polymeric) in order to avoid that during the mortar application the mesh be pushed at direct contact against the support, not resulting incorporated in the jet and by acting as separation layer, is essential to create a rough coat with the structural mortar, apply and fix the network and then continue with the plaster execution according to the directions indicated on the maximum thicknesses achievable per this coat, as shown before.

If subsequent levelling is to be carried out, this must only be done when the plaster is completely cured (wait for at least 1 week for any centimeter of thickness, and for a minimum of 3 weeks), so as to seal any shrinkage cracks that may have formed, particularly in the case of thick layers of plaster.

In case of reinforcing plasters, non-regular and weak support or very thick layer include in the skimming coat the mesh **Kimitech 350**.

The Obligations of marking are not related to the intrinsic nature of a given product, but to the use to which a specific material is used: before making the order in Kimia, the buyer shall submit all the documentation available to the worksite manager in order to determine the materials suitability (in terms of certifications and performance) in relation to the use for which they are intended.

For further information and advice on safe handling, storage and disposal of chemical products, the user must refer to the most recent Safety Data Sheet, containing physical, ecological, toxicological and other data related to safety. All technical data shown in this Technical Data Sheet are based on laboratory tests. Actual measurement data may vary due to circumstances beyond our control. The information and requirements indicated in this Technical Data Sheet are based on our current knowledge and experience and are to be considered, in any case, purely indicative. They cannot guarantee the final result of

the applied product and they have to be confirmed by exhaustive practical applications; therefore the user must test the suitability of the product for the intended application and its purpose. Users must always refer to the latest version of the local technical data sheet related to the product

TECHNICAL SPECIFICATIONS

SK123 - Structural reinforcement with CRM systems consisting of fiberglass mesh A.R. and mortar based on natural hydraulic lime on masonry affected by rising damp

SK124 - Structural reinforcement of brick, stone and tuff masonry, with FRCM systems consisting of a 200 g/m² basalt fiber mesh and mortar based on natural hydraulic lime

SK125 - Structural reinforcement of masonry in brick, stone, tuff, with FRCM systems consisting of 400 g/m² basalt fiber mesh and mortar based on natural hydraulic lime

(SK123) Demolition of existing plaster and loose parts and scarification of bed joints. Clean and wet of the surface. Proceed with reconstruction of missing or particularly damaged masonry parts.

On the wet support with SSD conditions, apply a first coat, at least 2 cm, on the masonry support using the NHL-based mortar Tectoria M15 by Kimia S.p.A or similar product.

Installation of a glass-fiber reinforcing mesh like Kimitech WALLMESH MR or HR by Kimia S.p.A. or similar products, partially incorporating it into the fresh mortar of the rough coat, providing an overlap of the mesh strips for about 15 - 20 cm in order to guarantee mechanical continuity.

Drilling (diameter 20 mm), pass-through (where required on both sides) or for a depth of 2/3 of the wall (in the case of reinforcement on only one face) in the number envisaged by the designer (in number however not less than 3 per square meter), to be carried out in compact areas of the masonry, preferably with rotating tools.

After cleaning, insertion of preformed, "L" shaped, glass-fibre connectors like Kimitech PLUG VR with thermosetting resin and improved adherence by Kimia S.p.A. or similar products, sealed by means of epoxy resin like Kimitech EPOXY CTR by Kimia S.p.A. or similar products. Once the first coat of mortar set, apply the next coat by trowel or machine device. In case of thickness bigger than 30 mm, the application must be splitted in several layer, applying each next layer on a non-smoothed surface. The skimming coat will be applied after the necessary curing time of the plastering mortar.

The mortar used for plastering will comply with the CE marking requirements such as restoration mortar (R type) according to EN 998-1. Report of tests carried out at external laboratories on specific properties pertaining to the dehumidifying function of the mortar (steam transmission) . It will show the consolidated know-how of the manufacturer as regards the proposed dehumidifying solutions.

(SK124) (SK125) Demolition of existing plaster and loose parts and scarification of bed joints. Washing and wetting of the surface. Possible reconstruction of missing or particularly damaged masonry parts.

Wetting of the substrate and application of M15 NHL-based mortar from Tectoria or Basic ranges by Kimia S.p.A. or similar product.

Between 12 and 48 hours after applying the mortar, proceed with the application of the reinforcement.

On a wet substrate with a dry surface, apply a first coat of render to the masonry using NHL-based mortar with a maximum granulometry of 1,2 mm from Basic or Tectoria ranges by Kimia S.p.A or a similar product.

Installation of a basalt-fibers reinforcing mesh like Kimitech BS ST 200 or Kimitech BS ST 400 by Kimia S.p.A. or similar products, (to cut the net at the openings use shears and/or construction cutters or angle grinder), partially incorporating it into the fresh mortar, providing overlapping of the mesh strips for about 15 - 20 cm in order to guarantee mechanical continuity.

The ready-to-use mortar based on NHL 3.5 and NHL 5 natural hydraulic lime will comply with the requirements for masonry mortars (EN 998-2) type M15, tested with regard to the non-emission of gamma/radon radiation; it will use contain recyclable natural materials, fired at low temperatures, reducing emissions and energy consumption; it will contain no Chrome VI; it will contain traditional materials, have low soluble salt content. It will be prepared and applied scrupulously following the indications given on the technical sheets supplied by the manufacturer and will have the following characteristics:

- Mechanical resistance to compression EN 1015-12: at 7 days > 6 MPa; at 14 days > 11 MPa; at 28 days > 15 MPa; at 90 days > 20 MPa;
- Absorption by capillarity EN 1015-18: $0.20 \text{ Kg/m}^2 \cdot \text{min}^{1/2}$;
- Water vapor permeability coefficient EN 1015-19 $\mu < 18$.

The basic binder of the product will be CE marked on the basis of EN 459 009 /CPD/ A46/0003.

It is CE marked according to the requirements of EN 998-2 for masonry mortars class M15 and according to EN 998-1 as a mortar for interior and exterior GP CS IV.