

Mapewood Paste 140

Thixotropic epoxy adhesive for the restoration of timber structural elements



WHERE TO USE

Bonding new timber parts to existing timber structures after the removal of decayed parts. Filling holes both in the existing timber structural element that needs to be repaired and in the new wood element in order to anchor connecting reinforcing rods and/or plates.

Some application examples

Repairing fir, pine, poplar, oak, chestnut and other types of timber beams, trusses and columns that need to be reconstructed by adding timber elements which might need to be anchored to the original element with metal or composite material rods or plates.

TECHNICAL CHARACTERISTICS

Mapewood Paste 140 is a solvent free epoxy adhesive of a thixotropic consistency composed of two pre-measured parts (Part A = resin and Part B = hardener), prepared according to a formula developed in the Mapei research laboratories.

Mapewood Paste 140 is available in two packages: the first is the traditional packaging, made up of two plastic drums containing the two parts. Once the two parts have been mixed, the product can be applied manually with a flat trowel. The parts of the second packaging must first be manually mixed and then can be applied by extrusion from a cartridge (see the "Preparing the product" paragraph).

Mapewood Paste 140 can be easily applied both on vertical and horizontal surfaces. It hardens without shrinkage becoming a paste with excellent bonding and mechanical strength compatible with wood.

RECOMMENDATIONS

- Apply **Mapewood Paste 140** on the wood surface only after having treated them with **Mapewood Primer 100** in cases of wood damaged by decay or insects or high density wood (oak and chestnut).
- Do not apply **Mapewood Paste 140** at temperatures below +10°C.
- Do not apply **Mapewood Paste 140** on wet surfaces.

APPLICATION PROCEDURE

Preparing the substrate

Secure the structure and remove the decayed part of the beam, column or truss with a clean cut. Prepare the new wood element choosing a wood similar to the existing one or with improved durability and mechanical strength. Prepare the slots for the connecting elements by creating suitably sized hollows or holes both in the element that needs consolidation and in the new wood element. Suitable elements are: threaded rods or rod irons, steel plates, other products in composite material which have been checked for good superficial bonding.

When sawing and drilling try to avoid the formation of splinters, superficial burns and the creation of areas with broken or flattened fibres.

In order to avoid the above mentioned, it is recommended to adopt the following measures:

- always use sharpened sawing tools of the correct size and form (never use steel or cement blades, noses or cutters);

Mapewood Paste 140



Damaged beams at the support



Sawing a beam



Preparing the prosthesis

- use suitable supports and guides so the tools do not deviate when the blade hits knots or cross grains;
- remove shavings frequently in order to avoid them from pressing onto the surfaces and provoking friction and overheating;
- after the sawing stage, clean the surfaces from dust, shavings and splinters;
- preferably prepare the wooden surfaces within 24 hours prior to applying **Mapewood Paste 140**. This is to avoid superficial oxidation, contact with pollutants and dust deposits.

If necessary apply one or two coats (depending on the type of wood) of **Mapewood Primer 100** on the sides of the holes and on the cut surfaces of the decayed wood and on the new wood element in order to fix loose fibres and improve the bonding of **Mapewood Paste 140**. It is recommended to read the instructions of the product on the technical data sheet before its use. Wait approximately 5 hours at +20°C before repairing the damaged element by anchoring the new reinforcing rod with **Mapewood Paste 140**.

Note: *The new wood element must be acclimatised before bonding them with **Mapewood Paste 140** or treating them with **Mapewood Primer 100**. It is absolutely necessary that the moisture content of the existing structural element and the new wood element be $\pm 3\%$ with respect to that of equilibrium in the service condition in order to minimise the dimensional variations and consequent tension development between the parts that need to be bonded.*

Preparing the product

When using the packaging with the two plastic drums, the two parts of **Mapewood Paste 140** must be mixed together. Pour Part B (white) into Part A (brown) and mix with a drill fitted with a whip until the resin is completely smooth (an even light brown coloured paste). The packages are already pre-measured. Avoid using partial quantities of the product in order to avoid accidental measuring ratio errors and the incomplete hardening of **Mapewood Paste 140**. If partial quantities are necessary, use an electronic precision scale.

When using the packaging made up the two plastic jars and the cartridge, proceed as follows: pour Part B (white) in the jar containing Part A (brown) and mix with a small utensil fitted with a whip. Mix until the product is completely homogeneous (an even light brown colour). Insert the extrusion disk into the jar containing the mixed product making sure to rest the disk onto the material. Cut the empty cartridge above the end of the thread and rest it on the extrusion disk. Apply a slight pressure towards the bottom of the jar so the **Mapewood Paste 140** penetrates into the cartridge. Position the cartridge and screw on the nozzle, which should be cut at 45° corresponding to the desired size. Insert the cartridge into the gun and extrude **Mapewood Paste 140**.

Applying the paste

Respecting the working time in relation to temperature, fill the hole or cavity made on one side of the wooden piece (beam, column, truss) with **Mapewood Paste 140**. Position the connecting rod or plate. Near the reinforcing rod to the element that needs repair making sure the cut surfaces perfectly fit. If cavities have been made for placing the connecting elements (for example for positioning the plates or for lateral accessibility only), it is recommended to:

- position and fix the new wood element in the prepared place making sure that the contact point between the new wood element and the element that needs to be consolidated is the widest possible;
- trowel on the correct amount of **Mapewood Paste 140** in the space prepared for the connecting element;
- inset the connecting element;
- seal the space prepared for the connecting element with a correctly sized wooden fillet;
- remove any excess **Mapewood Paste 140** with a trowel.

In case the spaces prepared for the connecting elements are holes (for example to position rods or in situations where the access is only at the headpiece), it is recommended to:

- place the connecting elements in the spaces inside the section that needs to be consolidated. Inject **Mapewood Paste 140** through a specially made small lateral hole;
- position and fix the new wood element in the space making sure the contact point between the new wood element and the element that needs to be consolidated is the widest possible;
- inject **Mapewood Paste 140** in the space for the connecting element inside the new wood element.

Note: *where possible, it is always recommended to apply **Mapewood Paste 140** on both the surfaces to be bonded. Remove any excess **Mapewood Paste 140** with a trowel.*

SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

Mapewood Paste 140 in repeated or prolonged contact with the skin could cause sensitivity.

Always wear protective gloves and goggles while using the product. In case of contact with the skin, wash with plenty of water and soap. If any symptoms of sensitivity should arise, consult a doctor.

In case of contact with the eyes wash with running water and consult a doctor. Use in ventilated areas.

Cleaning

Due to **Mapewood Gel 120**'s high adhesive strength also onto metal, it is recommended to wash working tools with solvents (ethyl

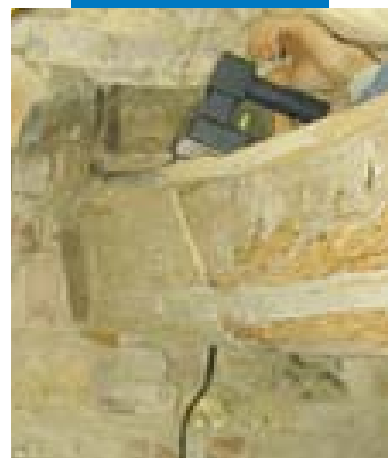
TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Customs class:	3907 30 00	
	Part A	Part B
Consistency:	thick paste	thick paste
Colour:	brown	white
Specific gravity (g/cm³):	1.6	1.6
Brookfield viscosity (mPa·s):	550 000 (Helipath F - rev. 5)	220 000 (Helipath F - rev. 5)
Storage:	24 months in original unopened packing at a temperature between +5°C and +30°C	
Hazard classification according to EC 99/45:	irritant	harmful
	Before use consult the "Safety instructions" paragraph and the information on the packaging and safety data sheet	
Mixing ratio:	Part A : Part B = 2 : 1	
Consistency of the mix:	thixotropic paste	
Colour of the mix:	light brown	
Specific gravity of the mix (g/cm³):	1.5	
Brookfield viscosity of the mix (mPa·s):	490 000 (shaft 3 - rev. 5)	
Workability:		
- at +10°C:	150'	
- at +23°C:	60'	
- at +30°C:	30'	
Setting time:		
- at +10°C:	14-16 h	
- at +23°C:	4-5 h	
- at +30°C:	2 h 30'-3 h	
Application temperature range:	from +10°C to +35°C	
Complete hardening:	7 days	
Bonding (shear compression) wood/wood (fir):		
- after 7 days at +23°C:	10 N/mm ²	
Tensile strength (ASTM D 638):	18 N/mm ²	
Yield traction (ASTM D 638):	1%	
Flexural strength (ISO 178):	30 N/mm ²	
Flexural modulus of elasticity (ISO 178):	4 000 N/mm ²	
Compressive strength (ASTM D 695):	45 N/mm ²	
Compressive modulus of elasticity (ASTM D 695):	3 000 N/mm ²	



Applying
Mapewood Paste 140



Smoothing a beam

Mapewood Paste 140



Placing the extrusion disk



Filling the cartridge



alcohol, toluol, etc.) before the product hardens.

CONSUMPTION

1.59 kg/l of cavity to be filled

PACKAGING

3 kg plastic drums (A + B) and kits made up of 450 g plastic jars (A+B), extruding disk and standard size empty cartridge.

STORAGE

The product must be stored in its original packing at a temperature not below +10°C.

FOR PROFESSIONALS.

WARNING

Although the technical details and

recommendations contained in this product report 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 applications: 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.

All relevant references of the product are available upon request



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