



Mapewood Gel 120

**Epoxy adhesive gel
for the restoration
of timber structural
elements**



WHERE TO USE

Bonding new timber parts to existing timber structures after the decayed parts have been removed. 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 a new wood element which might need to be anchored to the original element with metal or composite material rods or plates.

TECHNICAL CHARACTERISTICS

Mapewood Gel 120 is a solvent free epoxy adhesive of a gelatine consistency composed of two pre-measured parts that must be mixed before use (Part A = resin and Part B = hardener), prepared according to a formula developed in the Mapei research laboratories.

Once mixed, **Mapewood Gel 120** is easily applied and hardens without shrinkage becoming a composite with excellent bonding strength, physico-mechanical compatibility with wood and mechanical strength.

RECOMMENDATIONS

- When wood is damaged by decay, insects or high density (oak and chestnut) apply **Mapewood Gel 120** on the wood surface only after having treated them with **Mapewood Primer 100**.
- Do not apply **Mapewood Gel 120** at temperatures below +10°C.
- Do not apply **Mapewood Gel 120** 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 piece. Suitable elements are: threaded rods or iron reinforcing rod, steel plates, other products in composite material which have been checked for good surface bonding. If the hollows are cylindrical cavities, two transversal holes with 6-7 mm diameter (a depth that can intercept the cavity where the reinforcement rod will be inserted) must be created through which **Mapewood Gel 120** is injected. See Figure 1.



Figure 1

Mapewood Gel 120



Injecting
Mapewood Gel 120



Injecting
Mapewood Gel 120



Reprofiling the beam

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 cement blades, noses or cutters);
- 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 Gel 120**. 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 timber structural element that needs to be repaired and on the new wood element in order to fix loose fibres and improve the bonding of **Mapewood Gel 120**. 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 Gel 120**.

Note: *The new wood element must be acclimatised before bonding them with **Mapewood Gel 120** 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

The two parts of **Mapewood Gel 120** must be mixed together. Pour Part B into Part A and mix with a drill fitted with a whip until the resin is completely smooth.

Mixing ratio: 4 part by weight Part A and 1 part by weight Part B.

In order to avoid accidental measuring errors, use the whole package of the product. If partial quantities are necessary, use an electronic precision scale.

Applying the product

Place the reinforcing rods into the holes. Near the new wood piece to the element that needs repair making sure the surfaces fit perfectly. 24-48 hours before injecting **Mapewood Gel 120**, seal the perimeter of the cut and any other possible passages for the leakage of **Mapewood Gel 120** (cracks,

flaws and holes) with **Mapewood Paste 140**. Inject **Mapewood Gel 120** directly into the lateral openings via extrusion as shown in Figure 2:

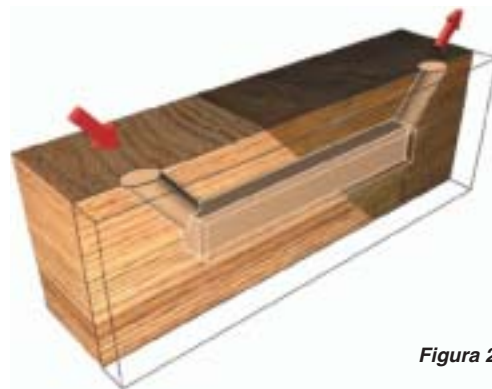


Figura 2

SAFETY INSTRUCTIONS FOR THE PREPARATION AND APPLICATION

Mapewood Gel 120 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 alcohol, toluol, etc.) before the product hardens.

CONSUMPTION

1.01 kg/l of cavity to be filled.

PACKAGING

2.5 kg units
(Part A = 2 kg and Part B = 0.5 kg).

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**

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Customs class:	3907 30 00	
	Part A	Part B
Consistency:	paste	paste
Colour:	light brown	yellow
Specific gravity (g/cm³):	1.02	1.00
Brookfield viscosity (mPa·s):	13 000 (shaft 3 - rev. 5)	11 000 (shaft 2 - 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 = 4 : 1	
Consistency of the mix:	gelatine paste	
Colour of the mix:	light brown	
Specific gravity of the mix (g/cm³):	1.01	
Brookfield viscosity (mPa·s):	11 400 (shaft 3 - rev. 5)	
Workability:		
- at +10°C:	60'	
- at +23°C:	40'	
- at +30°C:	20'	
Setting time:		
- at +10°C:	90'	
- at +23°C:	50'	
- at +30°C:	30'	
Application temperature range:	from +10°C to +30°C	
Complete hardening:	7 days	
Bonding (shear compression) wood/wood (fir):		
- after 7 days at +23°C:	9 N/mm ²	
Tensile strength (ASTM D 638):	30 N/mm ²	
Yield traction (ASTM D 638):	1.2%	
Flexural strength (ISO 178):	60 N/mm ²	
Flexural modulus of elasticity (ISO 178):	2 000 N/mm ²	
Compressive strength (ASTM D 695):	65 N/mm ²	
Compressive modulus of elasticity (ASTM D 695):	5 000 N/mm ²	



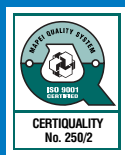
Repaired beam

Mapewood Gel 120



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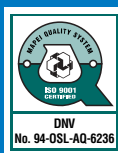
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