

Technical Instruction Sheet

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Properties:

AKEMI® Laminating and Repair Resin is a mixture of unsaturated polyester resins dissolved in styrene. The product is characterized by the following properties:

- highly liquid, thus good perfusion of glass fibre products
- fast hardening (30-40 minutes)
- very good adhesion to plastics (polyester, unplasticized PVC), wood, stone even at higher temperatures (up to approx. 100° C)
- the laminates have a high mechanical strength and high shatter resistance
- resistant against water, petrol and mineral oils as well as diluted alkalis and acids.

Application areas:

AKEMI® Laminating and Repair Resin is used to make laminates and moulded objects. In addition, it is implemented for reinforcing containers (hand lay-up technique) in combination with glass-fibre fabric or glass-fibre mats. It can also be used to carry out repair work on glass-fibre reinforced plastic parts (boats, caravans, motor vehicles) and to enclose small objects.

Instructions for use:

1. The surfaces it is to be applied to must be free of grease and oil and slightly roughened.
They also have to be dry, free of dust and slightly abraded. Old coats of paint which have not hardened or thermoplastic acrylic paint must be removed first.
2. The surfaces of moulds should be treated with a release agent, preferably a spray on the basis of silicone or wax.
3. The glass-fibre mats or fabric required for the work at hand are to be cut to the correct size first.
4. Add 1-4 g of hardener paste (white) per 100 g of resin (1 g of hardener corresponds to 4-5 cm of paste when squeezed out of the screw-top tube).
5. The two components must be thoroughly mixed together until a homogeneous colour is attained. The mixture remains workable for approximately 4-16 minutes.
6. a) When working with moulds, the glass fibre mat or fabric is inserted first (if more than one piece is to be used, overlap them and make sure the transition is smooth), then the prepared resin mixture should be dabbed on with a brush (small surfaces) or carefully spread over the whole surface with a spatula (large surfaces).
b) If containers are to be reinforced, apply the resin mixture to the surface which is to be reinforced and then continue as described above for the moulds.
7. Use a laminating roller, preferably one made of teflon, to improve perfusion and to remove any air bubbles.
8. Then you can add further layers of glass-fibre mat or fabric wet-on-wet, as required.
9. After 30-40 minutes the parts have hardened to such a degree that they can be further processed (abraded, milled or holes drilled) or transported.
10. Moulded objects which have been made in this way can be glued together using AKEMI® Poly-Glass.
11. Warmth accelerates the hardening reaction and the cold delays it.
12. Tools can be cleaned with AKEMI® Nitro Dilution.

Special notices:

- Use AKEMI® Liquid Glove to protect your hands.
- If more than 4% of hardener is used, it will reduce the quality of the finished product and surface drying may be negatively affected.
- If less than 1% of hardener is used, hardening will be delayed. At low temperatures hardening will be incomplete and the surface will remain very sticky.
- If you are doing laminating work which requires several layers, use glass-fibre mat and glass-fibre fabric alternatively or work wet-on-wet to avoid the risk of delaminating.
- If glass-fibre veil is used, a very homogeneous surface texture can be achieved.

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- Parts which are to come into contact with foodstuffs should first be allowed to harden at room temperature and then be left for another two hours at 60-70°C.
- If you are casting larger blocks, build them up in several thin layers and use a low amount of hardener. This prevents thermal tension and subsequent cracking.
- Hardened resin can no longer be removed with solvents. This can only be achieved mechanically or using high temperatures (>200° C).
- If it has been processed properly, the hardened resin does not present a danger to health.

Safety notices:

Please refer to the EC safety data sheet.

Technical specifications:

colour:	transparent yellow
density:	approx. 1.12 g/cm ³
viscosity:	900-1300 mPas
workability/min.:	
a) at 20° C	
1% hardener	14 -16
2% hardener	8 -10
3% hardener	6 - 7
4% hardener	4 - 5
b) with 2% hardener	
at 10° C	18 -20
at 20° C	8 -10
at 30° C	5 - 6

material consumption in combination with AKEMI glass-fibre products:

a) AKEMI glass-fibre mat 300 g/m ² :	900 - 1200 g/m ²
b) AKEMI glass-fibre fabric 240 g/m ² :	300 - 500 g/m ²
c) AKEMI glass-fibre veil 40 g/cm ² :	600 - 800 g/m ²

mechanical properties:

flexural strength DIN 53452:	110 N/mm ²
tensile strength DIN 53455:	60 N/mm ²
module of elasticity DIN 53457:	approx. 3500 N/mm ²
volume shrinkage:	7-8%
water absorption (30 x 50 x 50 mm)	
DIN 53495:	approx. 0.34% by weight in 24 hrs

shelf life:

can be stored for approx. 1 year in the closed original container under cool and frost-free conditions.

Notice:

The above information is based on the latest stage of our development and application technology. Due to a multiplicity of different influencing factors, this information – as well as other oral or written technical advises – must be considered as non-binding hints. The user is obliged in each particular case to conduct performance tests, including but not limited to trials of the product, in an inconspicuous area or fabrication of a sample piece.

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