Technical Instruction Sheet

Properties:

AKEPOX® 2005 3+3 Laminating Resin is a liquid, solvent-free, two-component system on the basis of epoxy resin with a modified polyamine hardener. This product is characterised by the following properties:

- approved by the DIBT as part of the AKEPOX® 2005 system under the number Z-50.1-323
- very good laminating resin for the production of steps in accordance with the 3+3 method using hewn stone or cast stone bound by either reaction resin or cement
- extremely little shrinkage during the hardening process. As a result, there is very little tension within the bonding layer
- extremely weather resistant
- can be easily and very effectively coloured using AKEPOX colour pastes
- good thermal stability: approx. 60-70° C
- the laminated layer has a good dimensional stability
- low tendency towards fatigue
- very good resistance to alkalis and therefore very suitable for cast stone
- suitable for use in bearing structural parts
- good electrical insulating effect
- good adhesion on slightly damp stone
- the product has no tendency towards crystallisation. For this reason there are no storing problems and good processing safety

Application areas:

AKEPOX® 2005 3+3 Laminating Resin is mostly used in conjunction with a GRP roving fabric for the manufacturing of steps (treads) for bolt-connected and stringer stairs made of hewn stone or either reaction resin or cement-bound cast stone. Thin gluing seams are possible on account of its low-viscosity consistency. This product is not suitable for the bonding of polyolefin's (PE, PP), silicones, fluorocarbons (teflon), plasticized PVC, flexible PU or butyl rubber.

Instructions for use:

1. The gluing surfaces must be clean (above all, they must be free of dust as well as residual matter from the sawing and grinding processes) and almost dry.
2. Two parts by weight of Component A are to be mixed with one part by weight of Component B (e.g. 100 g and 50 g).Alternatively, seven parts by volume of Component A are to be mixed with four parts by volume of Component B (e.g. 175 ml and 100 ml). The mixture must be free of streaks, i.e. of a homogeneous colour.
3. The resin can be coloured by adding AKEPOX® colour pastes (up to a maximum of 5%).
4. The mixture remains workable for approximately 40 - 50 minutes (at 20° C).
5. Apply part of the resin mixture to the first stone slab and distribute it with a toothed spreader.
6. Lay the roving fabric (weight per sq. metre: approx. 900 g/m²) on top and press it down with a laminating roller. Afterwards, apply enough of the resin mixture to soak the fabric well.
7. Any bubbles of air which may be present must be pressed out of the saturated GRP roving fabric using the laminating roller again.
8. Then the second stone is laid on top. Secure the glued parts to protect them from slipping to one side before they have hardened.

9. The laminated slabs can be sawn or further processed in another way after approx. 24 hours (at 20° C). Its maximum strength is reached after 7 days (at 20° C).
10. Tools can be cleaned with AKEMI®' Cleaner I.
11. Warmth accelerates hardening and the cold delays it.

Special remarks:

- The regulations laid down in the general construction supervision ordinance No.Z-50.1-323 are to be observed (see the enclosed ordinance).
- The optimum mechanical and chemical properties can only be achieved if the mixing ratio is exactly adhered to. Excess amounts of Component A or Component B act as a plasticizer or can cause discolorations at the edges.
- Residual matter resulting from the grinding or sawing reduces adhesion considerably.
- When working with the resin you should use AKEMI® "Liquid Glove" in order to protect your hands.
- Component A and Component B should only be taken out of their respective containers using separate vessels.
- If the resin mixture has begun to thicken or jellify, it should no longer be used.
- The product may not be used at temperatures under 10° C because it will not harden sufficiently.
- When it has hardened, the laminating resins tends to yellow - particularly if exposed to the sunlight.
- Laminating resin which has already hardened can no longer be removed by means of solvents. It can only be removed mechanically or by treating it with higher temperatures (> 200° C).
- The fully hardened laminating resin presents no hazard to health if it has been used properly.

Safety notices: Please refer to the EC safety data sheet

Technical specifications:

1. Component A: colour: pale yellow
   density: approx. 1.15 g/cm³
   viscosity: 1700-2000 mPas
   Component B: colour: pale yellow
   density: approx. 1.01 g/cm³
   viscosity: 5000-6000 mPas

2. Working time:

a) a mixture of 100 g Component A + 50 g Component B

at 10° C:	120	- 150 minutes
at 20° C:	40	- 50 minutes
at 30° C:	20	- 25 minutes
at 40° C:	10	- 13 minutes

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b) at 20° C and with varying amounts

20 g Component A	+ 10 g Component B:	90 - 100 minutes
50 g Component A	+ 25 g Component B:	50 - 60 minutes
100 g Component A	+ 50 g Component B:	40 - 50 minutes
300 g Component A	+150 g Component B:	30 - 40 minutes

3. Hardening process (Shore D hardness) of a 2 mm layer at 20° C:

4 hours	5 hours	6 hours	7 hours	8 hours	9 hours	24 hours
-	-	8	15	28	41	82

4. Mechanical properties:

bending strength (DIN 53452):	100 -110 N/mm²
tensile strength (DIN 53455):	50 - 60 N/mm²

5. Resistance to chemicals:

water absorption (DIN 53495)	> 0.5%
sodium chloride solution 10%	resistant
sea water	resistant
10% ammonia	resistant
10% sodium hydroxide solution	resistant
10% hydrochloric acid	resistant
10% acetic acid	limited resistance
10% formic acid	limited resistance
petrol	resistant
heating oil	resistant
lubricating oil	resistant

6. Shelf life: approx. 1 year if stored cool and frost-free in the closed original container

Notice: The above specifications were made on the basis of the present-day stage of technological development as well as the application research of our company. Because the ways and means of application are beyond our control, the manufacturer cannot be made liable for the contents of this specification sheet.

AKEMI GmbH · Lechstraße 28 · D-90451 Nürnberg · Tel. 0911/64296-0 · Fax 0911/644456