# Technical Instruction Sheet



**Characteristics:**

AKEPOX® 2020 is a viscous, solvent-free 2-component adhesive based on an epoxy resin containing fillers and a modified polyamine hardener. The product is distinguished by the following qualities:

- easy measuring and mixing by use of cartridge system
- extremely low shrinkage during the hardening process and therefore low tensions in the bonding layer
- extremely weather resistant bondings
- a good thermal stability: approx. 60-70°C for bonded parts exposed to weight, approx. 100-110°C for bonded parts not exposed to weight
- a good dimensional stability of the bonding layer
- a small tendency to fatigue
- a very good alkali-stability, thus the adhesive is very well suited to bond concrete
- excellently suited for bonding gas-impermeable materials as it is a solvent-free product
- suited for bonding load-bearing construction parts
- good electrical insulating property
- good adhesion on slightly humid stones
- suited for bonding materials which are sensitive to solvents (e.g. expanded polystyrene, ABS)
- the product is not liable to crystallise, therefore no problems in storing and processing
- classification according to the Berufsgenossenschaft der Bauwirtschaft (Accident Prevention and Insurance Association of the German Building Industry): **GISCODE: RE 01**

**Field of Application:**

AKEPOX® 2020 is mainly used in the stone processing industry for bonding of natural stones (marble, granite), artificial stones or building material (concrete, terrazzo) with each other or with iron, steel or aluminium. Due to a certain stability conditioned by its structure the product can be applied as well vertically up to a layer thickness of about 2 mm; even extremely uneven surfaces can be bonded or for anchoring of slabs or railings. Other materials s.a. plastics (rigid PVC, polyester, polystyrene, ABS, polycarbonate), paper, wood, glass and many other materials can be bonded. Metal parts coated with AKEPOX® 2020 are very well protected against corrosion. Materials e.g. polyolefin (polyethylene, polypropylene), silicone, fluorohydrocarbons (Teflon), flexible PVC, flexible PU and butyl rubber cannot be bonded with AKEPOX® 2020.

**Instructions for Use:**

A. Cartridge System

- without mixing nozzle: dosing apparatus only
- with mixing nozzle: dosing and mixing apparatus at the same time

1. Thoroughly clean and slightly roughen surfaces to be bonded.
2. Remove the clasp from the cartridge and put the cartridge in the gun; work the grip until material emerges from both openings; then eventually screw up the mixing nozzle.
3. AKEPOX® Colouring Pastes or Colouring Tints can be added up to max. 5 %.
4. Both components must be thoroughly mixed when working without mixing nozzle.
5. The mixture remains workable for approx. 40-50 min (20°C). After 6-8 hours (20°C) the bonded parts may be moved, after 12-16 hours (20°C) approx. they may be further processed. Max. stability after 7 days (20°C).

6. Tools can be cleaned with AKEMI® Nitro-Dilution.
7. The hardening process is accelerated by heat and delayed by cold.
8. If stored in cool place, approx. shelf life is 1 year.

B. Product in cans

1. Thoroughly clean and slightly roughen surfaces to be bonded.
2. Thoroughly mix 2 parts (volume or weight) of component A with 1 part (volume or weight) of component B until a homogeneous shade of colour is achieved.
3. AKEPOX® Colouring Pastes or Colouring Tints can be added up to max. 5 %.
4. The mixture remains workable for approx. 40-50 min (20°C). After 6-8 hrs (20°C) the bonded parts may be moved, after 12-16 hrs (20°C) approx. they may be further processed. Max stability after 7 days (20°C).
5. Tools can be cleaned with AKEMI® Nitro-Dilution.
6. The hardening process is accelerated by heat and delayed by cold.
7. If stored in cool place, approx. shelf life is 1 year.

**Special Hints:**

- Metallic surfaces should be ground in a short interval before bonding to avoid a decrease in adhesion.
- Single Mix cartridges are not suitable for pneumatic guns without mechanical pistons.
- Only if the right mixing ratio is kept, optimal mechanical and chemical properties can be obtained. A surplus of adhesive or hardener has the effect of a softener and can cause discolouration in the marginal zone.
- An adhesive which is already thickened or just gelling should not be used anymore.
- At temperatures below 10°C the product should not be used anymore as there is no sufficient hardening.
- The hardened adhesive is liable to yellowing when exposed to sunlight and is therefore not suited for fillings or visibly bonded joints on light-coloured or white surfaces.
- Once hardened, the adhesive can no longer be removed by solvents. Removal is only possible mechanically or by higher temperatures (> 200°C).
- When worked correctly, the hardened adhesive is not damaging to health.
- For cartridges use the AKEMI® original mixing nozzle only.

**Technical Data:**

1. Component A+B

| | |
|---|---|
| Colour: | light grey |
| Density: | approx. 1.52 g/cm³ |

2. Working Time

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

| | | | |
|---|---|---|---|
| at 10°C: | 110 | - | 120 minutes |
| at 20°C: | 40 | - | 50 minutes |
| at 30°C: | 20 | - | 30 minutes |
| at 40°C: | 10 | - | 20 minutes |

b) at 20°C and different quantities

| | | |
|---|---|---|
| 20 g of component A + | 10 g of component B: | 60 - 70 min |
| 50 g of component A + | 25 g of component B: | 50 - 60 min |
| 100 g of component A + | 50 g of component B: | 40 - 50 min |
| 300 g of component A + | 150 g of component B: | 35 - 45 min |

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

| 3 hrs | 4 hrs | 5 hrs | 6 hrs | 7 hrs | 8 hrs | 24 hrs |
|---|---|---|---|---|---|---|
| -- | 23 | 35 | 54 | 65 | 72 | 80 |

4. Mechanical Properties

| | | | |
|---|---|---|---|
| Bending strength DIN 53452: | 50 | - | 60 N/mm² |
| Tensile strength DIN 53455: | 20 | - | 30 N/mm² |

5. Chemical Resistance

| | |
|---|---|
| Water absorption DIN 53495 | < 0.5 % |
| Sodium Chloride Solution 10% | stable |
| Salt Water | stable |
| Ammonium 10% | stable |
| Soda Lye 10% | stable |
| Hydrochloric acid 10% | stable |
| Acetic acid 10% | conditionally stable |
| Formic acid 10% | conditionally stable |
| Petrol | stable |
| Diesel oil | stable |
| Lubricating oil | stable |

6. Shelf life: 1 year approx. if stored in cool place free from frost in its tightly closed original container.

**Safety Measures:**

- Both the reactive single components as well as the ready-for-use mixture can be corrosive and can cause irritation or sensitisation until it has hardened.
- Epoxy resins are potential allergens. They can cause skin allergies.

**Marking**

Resin components:
- Irritant; (Xi), dangerous for the environment (N)
- Irritating to eyes and skin; (R36/38)
- May cause sensitisation by skin contact (R43)
- Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment (R51/53)

Hardener components:
- Corrosive; (C)
- Harmful by inhalation, in contact with skin and if swallowed (R20/21/22)
- Causes burns (R34)
- May cause sensitisation by skin contact (R43)

- Direct contact with the skin must be avoided at all costs. This is why personal protective equipment is particularly important.

- When working with epoxy resins, protective gloves and safety goggles must be worn and skin protection and skin care products used.

- Recommended protective gloves (as per laboratory measurements carried out by the company KCL in accordance with EN 374)
  - Butoject ( KCL, item no. 897, 898)
  - Camatril ( KCL, item no. 730, 731, 732, 733)
  - Dermatril (KCL, item no. 740, 741, 742)
- Eye and face protection:
  - Safety goggles (danger of splashes)
  - Face shield when working overhead, when applied by spraying or crack injection
- Breathing protection:
  - The product should only be applied in well-ventilated areas.
  - Respirators: Type A2/P2
- Skin protection: (from the company Stockhausen)
  - Protection of uncovered parts of the body (face, neck area) without contact with epoxy resin products: ARRETIL
  - Preventive skin protection in combination with protective gloves: STOKO EMULSION
  - Skin cleansing after working: SLIG SPEZIAL
  - Skin care after working: STOKO VITAN
  - Do not use aggressive cleaning agents, abrasive agents or solvents
  - In the event of contamination, remove as quickly as possible with a clean cloth or paper towel, then wash with water and soap

- Preventive occupational health examinations
  - To be carried out before a person starts work with epoxy resins and is to be repeated at regular intervals

- Observation of general protection and hygiene measures
  - Avoid contact with the eyes and the skin
  - Do not eat, drink, smoke or take snuff whilst working
  - Use a skin protection ointment as a preventive measure
  - Clean skin thoroughly after handling the product
  - Remove soaked and soiled clothing immediately
  - Do not inhale gases / vapours / aerosols
  - Wear protective gloves when cleaning tools or use disposable tools

- First Aid
  - Eye contact:
    - Rinse for 15 minutes under running water
    - Then consult a doctor without fail

- Skin contact:
  - Remove soaked clothing immediately
  - Wash affected parts with plenty of water and mild soap or take a shower
  - If larger areas of skin are affected or in the event of skin redening, irritation or itching, consult a doctor
- Inhalation:
  - Fresh air and consult a doctor

- Please take heed of
  - The **danger notices and safety advice on the container** and the **safety data sheet**
  - The **practical guide for the handling of epoxy resins** issued by the Berufsgenossenschaft der Bauwirtschaft
  - The data sheet **BGR 227: Tätigkeiten mit Epoxidharzen** ("Handling epoxy resins") issued by the Hauptverband der gewerblichen Berufsgenossenschaften (German Federation of Institutions for Statutory Accident Insurance and Prevention).

**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 trails of the product, in an inconspicuous area or fabrication of a sample piece.



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