

Technical Data Sheet

Page 1 of 3

Properties:

AKEMI® Stone Strengthener K is a 1-component product based on ethyl esters of silicic acids. The product is converted into the natural binding agent silica gel and ethanol by the catalytic reaction with air humidity. Approx. 400 - 500 g of silicic acid gel is produced out of 1 kg Stone Strengthener K. The product is characterized by the following properties:

- easy working due to ready-to-use 1 component product
- very high contents of active substances
- good penetration due to its very fluid consistency
- colourless, therefore also suited for light-coloured natural stone
- solventless
- weather-resistant and non-yellowing
- no closing of the pores, the stone retains its ability to breathe

Application Area:

AKEMI® Stone Strengthener K is used to solidify absorbent mineral natural stone (sandstone, tuff stone, limestone etc.) or artificial stone (stucco, fresco, bricks and terracotta). Hardly any colour changes occur and the natural breathing properties of the stone are preserved.

Instructions for Use:**1. Preparing Measures**

In order to achieve a successful solidification, it is important to first determine the condition of the object which has to be solidified:

a) Test for noxious salts (nitrates, sulphates, chlorides)

In case a large amount of these soluble salts is contained, the salt content must be reduced by several careful cleaning procedures with water (if necessary with compresses). If the stone is very brittle, it may be advisable to strengthen the stone (if the salt content is adequately low) before cleaning it because intensive cleaning may result in a significant loss of substance. High-pressure cleaners are generally not suitable for cleaning.

b) Determination of damaged stone layer

An optimum solidification can only be guaranteed if more than the complete brittle stone stratum is strengthened. If not, shells may form and parts may chip off. Damaged stone has a higher porosity and therefore a higher water absorption. Extract a core from the stone to be treated and cut the core into slices. To examine the water absorption put the stone slices on well-watered foamed plastics. To compensate for the water extracted from the foamed plastics due to the capillary water absorption, they are put in a container filled with water. In intervals of 1 hour and during a period of 8 to 24 hours the specimen is weighed. Thus, the water absorption, porosity and degree of damage can be determined.

c) Cleaning

Besides mechanical cleaning methods there are different chemical products available, s.a. AKEMI® Stone Cleaner, AKEMI® Concrete Film Remover, AKEMI® Rust Remover, AKEMI® Intensive Cleaner, AKEMI® Algae and Mildew Remover POWER, AKEMI® Wax Stripper, AKEMI® Oil and Grease Remover Paste and AKEMI® Graffiti Remover. Rinse thoroughly with water after cleaning. The cleaning procedure must be adapted to the object to be treated.

TDS 11.21

Technical Data Sheet

Page 2 of 3

d) Preparation of a sample area

In case larger areas (façades) are to be solidified we recommend to prepare a sample area of 1 - 2 m² in order to:

- determine the material consumption as exactly as possible
- determine the efficiency of the product
- determine whether the object was strengthened up to the healthy core of the stone

Efficiency and solidification depth can be examined according to the water absorbent method.

2. Strengthening procedure

- The best conditions are a completely dry stone, a temperature of 10 - 25°C, a relative air humidity of more than 50% as well as protection from rain and sunlight for 2 to 3 days.
- Apply Stone Strengthener K several times wet-in-wet in spray-, stroke- or dipping-method, until the stone no longer absorbs any material; if necessary, repeat the treatment after 2 - 3 weeks. Airless spraying equipment with low pressure (max. 1 bar over pressure) is suitable for treating façades using the flooding (multiple-coat) method and a jet distance of 5 - 10 cm (condition: tubes and seals must be resistant to solvents). Stone Strengthener K is applied several times at intervals of 1 - 2 hours until it runs down 40 - 50 cm.
- It is important to apply the evenly until complete saturation is reached.
- To avoid colour enhancement of the stone we recommend to treat the surface with AKEMI® Nitro-Thinner approx. 1 hour after the last application.
- A second solidification can be made afterwards or stone substitution material can be applied. If the product is applied after coating with stone substitution material, a reaction time of approx. 4 weeks must be taken into consideration.
- The reaction time at 20°C and an approximate relative air humidity of 50% is approx. 2 - 3 weeks.
- Subsequent hydrophobic treatment with AKEMI® Stone Impregnation is recommended.
- Tools can be cleaned with benzine or AKEMI® Nitro-Thinner.

Special Notes:

- Use afin® Liquid Glove to protect your hands.
- Surfaces to be treated should be protected from sunlight and rain
- Surplus material can cause blooming and spots.
- Protect synthetic materials which are not resistant to solvents, window-screens, parts to be varnished or objects situated in the area of working (cars, gardens).
- In case of longer immersion time, the immersion tank should be closed airtight.
- For proper waste disposal, the container must be completely emptied.

Technical Data:

Consumption:	0.5 - 15 liter/m ²
Colour:	colourless
Density:	approx. 1.00 g/cm ³
Content of active substance:	100%

Storage:

If stored in dry and cool condition (5-25°C/41-77°F) in its closed original container at least 12 months from production.

TDS 11.21

Technical Data Sheet

Page 3 of 3

Health & Safety:	Read Safety Data Sheet before handling or using this product.
Important Notice:	The above information is based on the latest stage of 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.

TDS 11.21