# SILIKAL® R 17 mortar

## Reactive resin mortar for concrete repairs and screeds

SILIKAL® R 17 mortar is a solvent-free 2-component methacrylic resin mortar with a high compressive strength and tensile strength in bending. It is characterized by very low linear shrinkage.

Because of its high strength, the mortar is suitable as a wear-resistant concrete coating for coating thickness of 6 – 20 mm. The low shrinkage rate enables even larger unevenness to be levelled out. The mortar surface resembles that of a fine exposed concrete and can be topped with suitable Silikal coatings to ensure a decorative surface look. The hardening time is about 1 hour at +20 °C, and hardening takes place in temperatures ranging from -10 °C to +35 °C (approx. 1 – 3 hours). The very low viscosity enables rapid mixability and application to be achieved.

## Application

Special areas of use are on floors for traffic areas in industrial concerns which are subject to heavy mechanical stress and as a localized repair mortar for indoors and outdoors. Greater coat thicknesses can be achieved by adding further coarse aggregates (e. g. for ramps, rail bedding, filler and screed mortars, casting bridge bearings). Suitable coarse aggregates include non-absorbent mineral particles (e. g. quartz gravel) in the proportions listed in the table below. For large-volume applications, individual gravel stones up to 30 cm in diameter can be inserted. However, these should not touch each other, as otherwise this place will have an increased tendency to fracture.

## Advice on application

The substrate generally needs to be pre-treated.

☞ Please refer to the technical information sheet entitled **“The Substrate”**.

SILIKAL® R 17 mortar consists of SILIKAL® R 7/R 17 Powder to which quartz sand of particle diameter up to 1.8 mm has been added and the watery methacrylic-based SILIKAL® R 17 Hardener Liquid.

The consumption of basic mortar mix is 2 kg/m² per mm of coat thickness. The recommended primer for cement substrates is SILIKAL® R 51 resin with quartz sand of particle size 0.7 – 1.2 mm loosely sprinkled in.

The mixing ratio is 15 kg (1 sack) of SILIKAL® R 7/R 17 Powder and 1.7 – 2.2 litres of SILIKAL® R 17 Hardener Liquid. You must not use more or less than these quantities of hardener liquid, as they already cover the range from stiff to low viscous.

Under no circumstances should other untested additives be added to the mixture. The exact coating thickness of 6 mm must be observed. On unevenness which runs out to zero, cuts must be made in the edge area. Thinner coats will result in reduced strength and hardening problems.

## Mixing the reactive resin mortar

To produce the mortar mix, 1.7 – 2.2 litres of SILIKAL® R 17 Hardener Liquid (depending on the desired mortar consistency) is added to the SILIKAL® R 7/R 17 Powder. Because of its thin, viscous consistency, the mix can be easily prepared in a short time by means of a high-speed agitator, while smaller quantities can be prepared manually. Mixes with coarse aggregates can also be produced using low-speed forced agitators or in the normal concrete mixer. You must ensure that the coarse particles are not added until the SILIKAL® R 7/R 17 Powder and SILIKAL® R 17 Hardener Liquid have already been mixed together.

The finished mortar is spread evenly by means of a doctor blade and smoothed or applied using an aluminium lath and screed board. The boards should normally be made from polypropylene strips (PP), as these can be easily detached from the mortar after hardening and then cleaned.

The pot life at normal temperatures is about 12 – 14 minutes, the hardening time about 60 – 90 minutes. The values indicated will vary according to the ambient temperature.

If mortar surfaces made from SILIKAL® R 17 mortar are then coated with reactive methacrylic resin systems, another coat of primer (e. g. SILIKAL® R 51 or RU 727 resin) must be applied first.



**Silikal GmbH & Co. KG**
✉ Ostring 23 D-63533 Mainhausen
✆ +49 (0) 61 82 / 92 35-0 ✆ +49 (0) 61 82 / 92 35-40
🌐 www.silikal.com @ mail@silikal.de

## Special formulations:

**SILIKAL® R 17-fine mortar**

If the basic mortar mix is too coarse for finer concrete work, we recommend that you use SILIKAL® R 17-fine powder instead (minimum thickness of SILIKAL® R 17-fine mortar: 2 mm). In this case, the necessary quantity of SILIKAL® R 17 Hardener Liquid is about 2.7 – 3.0 litres per 15 kg of fine powder.

**SILIKAL® R 17 (-25 °C) mortar**

For repair work in cold areas (cold stores, winter season), you can use this more accelerated SILIKAL® R 17 mortar. However, this should only be applied at temperatures ranging from -10 °C to -25 °C and must be cooled down to at least 0 °C before being applied. The special formulation relates to hardener liquid and powder.

**SILIKAL® R 17-thix mortar**

If laying on inclines or when modelling edge excavations and coving, we recommend that you use SILIKAL® R 17-Thix Hardener Liquid, but at the same mixing ratio, due to the thixotropic formulation.

## Special shades/colours

The standard shade is roughly RAL 7030 medium grey. If complete batches and minimum quantities are purchased, special shades are available on request.

## Characteristics of R 17 Hardener Liquid as delivered

| Property | Measuring method | Approx. value |
|---|---|---|
| Viscosity at +20 °C | DIN 53 015 | 0.6 – 0.7 mPa · s |
| Flow time at +20 °C, 3 mm cup | ISO 2431 | 20 – 21 sec. |
| Density $D_4^{20}$ | DIN 51 757 | 0.93 g/cm³ |
| Flash point | DIN 51 755 | +10 °C |
| Pot life at +20 °C | approx. 15 min. | |
| Application temperature | -10 °C to +35 °C | |

## Characteristics of R 17 mortar in the hardened state

| Property | Measuring method | Approx. value |
|---|---|---|
| Density | DIN 53 479 | 2.15 g/cm³ |
| Compressive strength | DIN 1164 | 75.0 N/mm² |
| Tensile strength in bending | DIN 1164 | 27.5 N/mm² |
| Module of elasticity | DIN 53 457 | 7000 N/mm² |
| Water absorption, 4 days | DIN 53 495 | 90 mg (50 · 50 · 4 mm) |
| Water vapour permeability | DIN 53 122 | $1.05 \cdot 10^{-11}$ g/cm · h · Pa |


**Silikal GmbH & Co. KG**

Ostring 23 D-63533 Mainhausen
+49 (0) 61 82 / 92 35-0 +49 (0) 61 82 / 92 35-40
www.silikal.com @ mail@silikal.de

## Calculation aid for application and costing

| SILIKAL® R 17 mortar | Quantity in kg | Loose (litres) | Solid volume (litres) | Minimum thickness (mm) |
|---|---|---|---|---|
| a) R 7/R 17 Powder | 15.00 | 11.50 | | |
| R 17 Hardener Liquid | 1.85 | 2.00 | | |
| | 16.85 | | 8.50 | 6 |
| b) R 7/R 17 Powder | 15.00 | 11.50 | | |
| R 17 Hardener Liquid | 1.85 | 2.00 | | |
| SILIKAL® Filler QS 2 – 8 mm | 8.00 | 5.00 | | |
| | 24.85 | | 11.60 | 25 |
| c) R 7/R 17 Powder | 15.00 | 11.50 | | |
| R 17 Hardener Liquid | 1.85 | 2.00 | | |
| SILIKAL® Filler QS 2 – 8 mm | 3.00 | 1.90 | | |
| SILIKAL® Filler QS 8 – 16 mm | 12.00 | 7.50 | | |
| | 31.85 | | 14.25 | 50 |


⇨ **Other relevant documentation:**

| | Technical Documentation Data sheet | Page |
|---|---|---|
| General processing information | AVH | 83 – 86 |
| The substrate | DUG | 87 – 89 |
| Fillers and pigments | FUP | 90 – 91 |
| Information on safety and protection | SUS | 94 – 95 |
| Storage and transport | LUT | 96 – 98 |





**Silikal GmbH & Co. KG**
Ostring 23 D-63533 Mainhausen
+49 (0) 61 82 / 92 35-0 +49 (0) 61 82 / 92 35-40
www.silikal.com @ mail@silikal.de