



Expect more from your floor.

PMMA heavy-duty sealants

Technical documentation



***Perfect solutions down
to the last detail!***

Silikal product information

Silikal general information

Issue HLA 1.00.A

Juli 2013



Silikal's production and administrative headquarters in Mainhausen, Frankfurt am Main

We protect buildings ... as we have been doing for more than 60 years!

It all started in Frankfurt am Main back in 1951. Having initially concentrated on screed construction, at the start of the 1960's we then began to develop new, modern synthetic resin-based products for the dynamically growing construction sector; primarily for floor coatings and engineering applications in trade and industry. We have continued on that path with countless research projects to date.

For the last few decades we have been active across the world, in Germany, Switzerland, Italy, Austria and almost all other countries in Europe. We are also active in North and South America, Asia, Africa and Australia.

As the markets developed, so did Silikal. With ever changing requirements demanding constant product developments, the product range grew from year to year. Today, our customers can choose from a large number of MMA, epoxy or PU products and specialties, whether coatings, sealants, mortars or PU concrete, tested to CE, TÜV and AgBB standards. On offer are resins for marking and orthopaedic applications, adhesives for filling cracks or testing tensile strength and resins for design floors or tactile guidance systems for the blind, to name just a few.

We pride ourselves on our advice, service, speed – and of course quality! Our response when customers need us is as fast as the curing times of our reactive resins. A whole team of specialists, technicians, applications engineers and developers are on standby for you, and our service really is "round the clock"! You can contact our hotline "live" 24 hours a day, even on Sundays and public holidays.

As we said, we protect buildings! We protect and keep things sealed - why not put us to the test?



Certified Quality and Ecology
Management Systems
Reg. No. 73 100 / 104 663



Certified according to
AgBB evaluation
scheme



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Technical documentation

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Important note

The general technical documentation contains the following important and sometimes additional data sheets and chapters:

- Data sheet for SILIKAL® ZA low-temperature accelerator additive for priming
- General advice on application
- The substrate
- Fillers and pigments
- Chemical resistance
- Information on safety and protection
- Storage and transport
- General cleaning advice

Sealants in a building are indispensable ...

... and not only offer outstanding protection against the ingress or penetration of moisture, but are also suitable for many different functional requirements in a wide variety of uses. Benefits include

- high flexibility in the event of temperature fluctuations
- good adhesion to concrete, asphalt, bitumen sheeting, tiles, metal, PVC and many other materials
- outstanding UV and weather resistance
- resistance to the majority of aggressive media

Methyl methacrylic sealing resins from Silikal ...

... offer significant advantages over traditional seals such as foil or sheeting:

- full, jointless installation directly on the substrate: no seams or gluing points
- safe and simple integration of pipe lead-throughs, light shafts, outlets and other objects, whatever the shape and however many corners and edges these may have
- lightning-fast curing times, allowing the surfaces to be returned to use quickly, even at low temperatures
- also available in decorative colours and with different slip resistances, e.g. for the balcony or covered walkway

This technical documentation ...

... describes the sealing systems recommended by Silikal for the most important areas of application. It also contains the technical specifications of Silikal sealing resins and additives as well as general advice on application and instructions. Silikal reserves the right to make technical modifications.

Silikal **guarantees** all the figures listed in the technical data sheets, but tolerances may of course occur for processing and application reasons and such deviations are permitted. The processing of Silikal materials should always properly be left to trained and experienced experts. Silikal attaches considerable importance to the training and technical support of its specialist layers and on providing comprehensive advice on use, including on site. The standard recipes recommended in the systems offer the greatest possible guarantee for optimal work, but this does not release the layers in each particular case from their duty to examine and assess the individual circumstances carefully. In case of doubt, tests should be carried out before execution, or Silikal consulted for advice. Because of their many years of experience, Silikal's specialist layers boast sufficient knowledge and expertise, including beyond the application limits described here.

You must always remember that there are risks in such cases. Silikal does not offer any application-specific guarantee whatsoever, that is not expressly agreed in writing in the individual case. This relates (for example) to circumstances extending above and beyond the usual normal and general use or information in brochures and other literature which is of a purely descriptive nature. It also goes without saying that the establishment of a proper surface meeting statutory requirements (e.g. with regard to slip resistance on balconies) does not mean that accidents can necessarily be prevented on this surface, or that any corresponding guarantee is offered in that regard. In principle, liquids, cleaners and the like must always be handled with care on the finished surface. If in doubt consult Silikal for advice. The same applies for the use of materials which were not approved by Silikal.

It must be remembered that a seal (in addition to its other properties) serves first and foremost to protect the component or surface and as a wearing layer. Wear, particularly in the case of slip-resistant surfaces, is subjective and depends on the intensity of use, so it is often not possible to give an absolute prediction of service life. Assuming that proper treatment and due care is given, seals made from reactive resins (in many cases) represent the best and most cost-effective solution for years. Silikal wishes to point out that all currently applicable standards and regulations also have to be observed in principle. For example, safety and environmental regulations, DIN, ISO and EU standards and the notice sheets and guidelines issued by the BEB (German Association for Screeds and Flooring Systems), third-party property rights and the generally recognised rules of the art.

Updates

This technical documentation can also be found on Silikal's website at "www.silikal.de" which is subject to continuous updating.

PMMA heavy-duty sealants

Areas of application



Flat roof sealing



Flat roof sealing of a double garage

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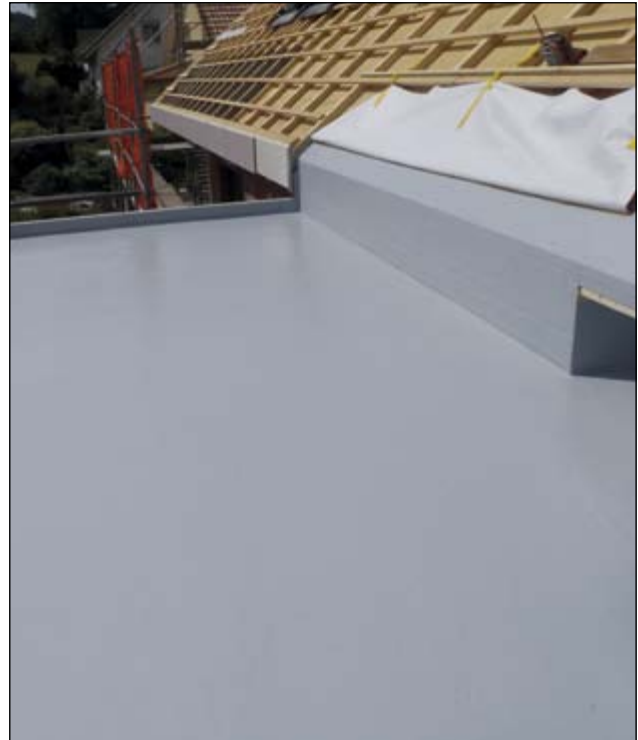
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PMMA heavy-duty sealants

Areas of application



Terraces/balconies



Pictures above and left:
Terraces/balconies



Staircase renovation

Technical documentation

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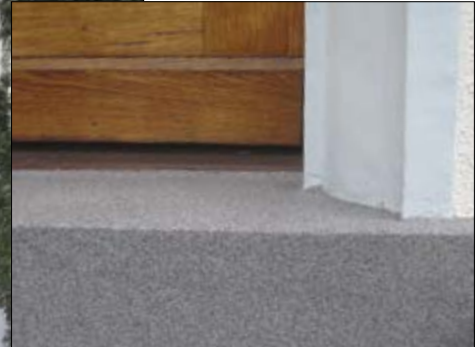
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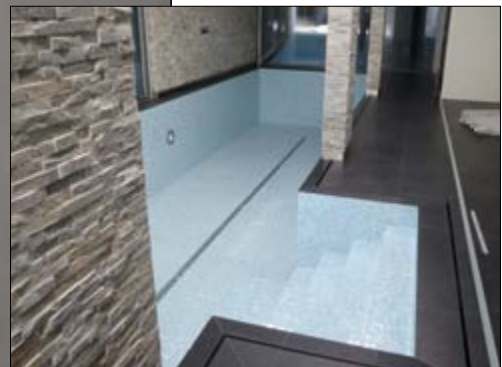
Areas of application



Staircase renovation



Swimming pool seal
with subsequent tiling



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PMMA heavy-duty sealants

Areas of application



Movement joint/dilatation joint



Surface seals



Component connection/surface seal



Pipe lead-throughs

Pipe lead-through and joint seal

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PMMA heavy-duty sealants

Areas of application



Joint seal with cable lead-throughs



Threshold sealing



Change of material/joint seal



Threshold sealing



Threshold sealing

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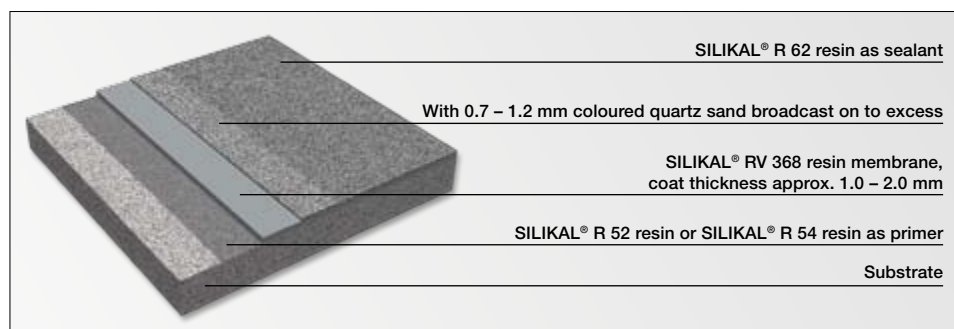
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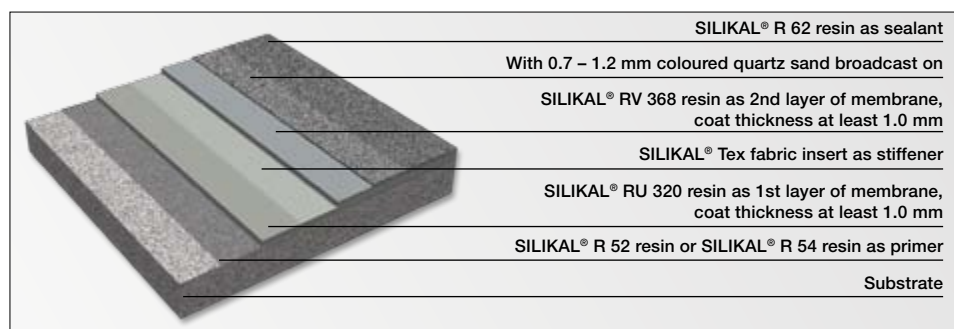
Surface seal for structures in contact with ground



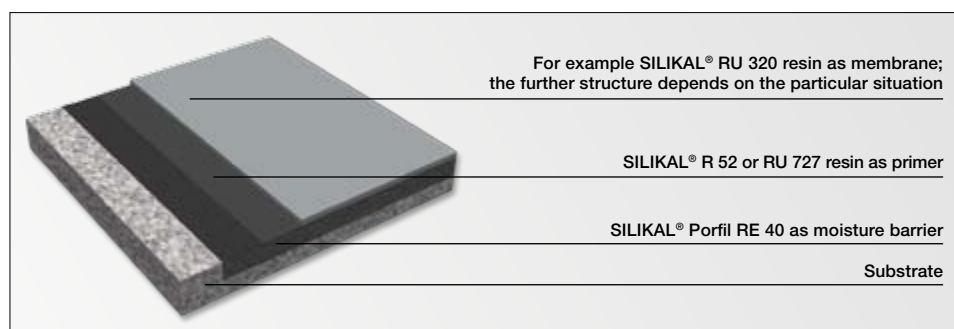
Surface seal under tiles/slabs and screed



Slightly elastic utility coating resistant to foot traffic for terraces/balconies



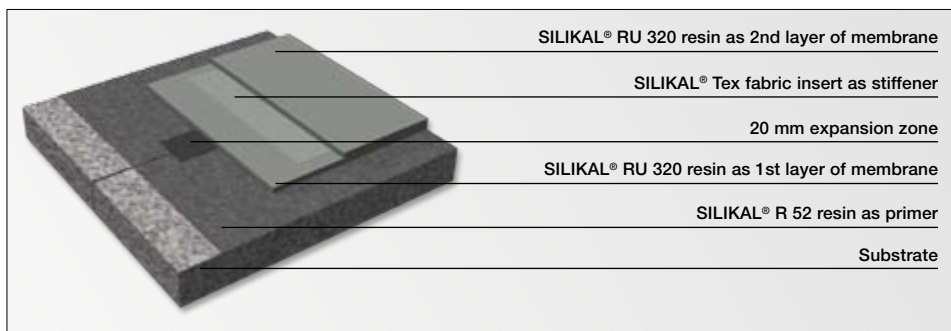
Sealant/coating resistant to foot traffic on terrace/balcony substrates exposed to dynamic cracking risks



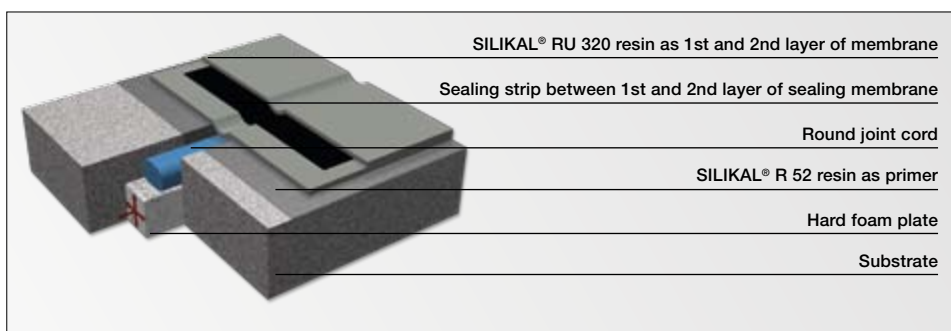
System structure for high moisture penetration through the rear causing strain

PMMA heavy-duty sealants

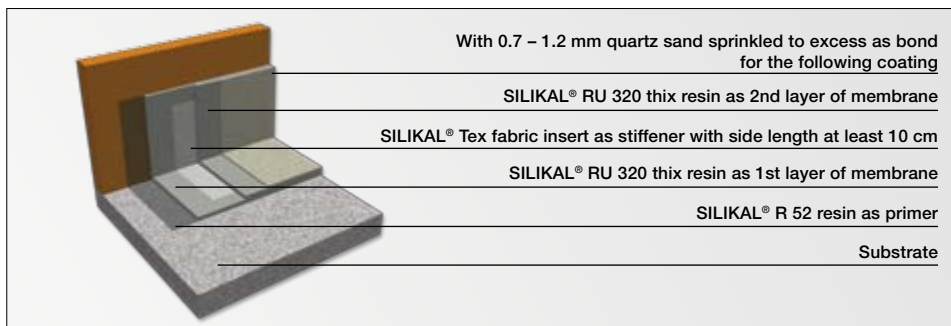
Details



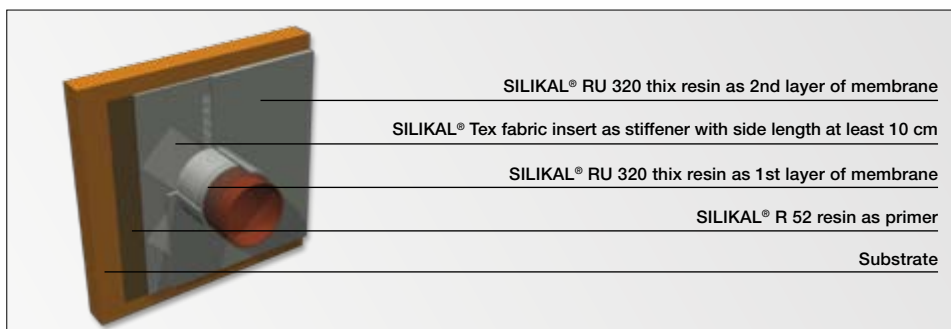
Crack with
dynamic movement
and active water stress
(no negative water
pressure)



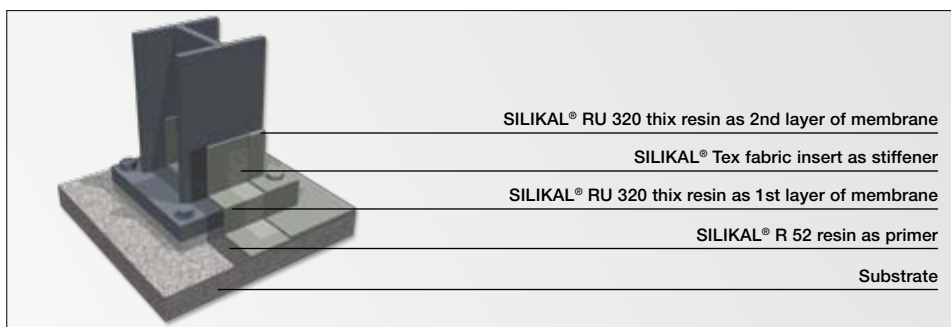
Movement/dilatation joint



Upstand and splay/
material change



Pipe lead-through



Steel support joint

SILIKAL® R 52 resin is a medium-viscosity, transparent, solvent-free 2-component methacrylic resin that cures rapidly even at low temperatures if hardener is added. Its greater viscosity makes SILIKAL® R 52 resin more suitable than SILIKAL® R 51 resin for priming vertical and absorbent substrates with sufficient strength.

Use

SILIKAL® R 52 resin is used as a wash primer on concrete and cement substrates. The higher viscosity means that a thicker and more integral priming film is achieved than with SILIKAL® R 51 resin.

Advice on application

Once the substrate has been inspected, it normally needs to be pre-treated.

The necessary quantity of hardener must be adjusted in light of the temperature of the building. For the exact quantities, please refer to the table **Hardener dosages**.

You must not use less than the given quantity of hardening powder, as this will jeopardise the curing process. You must also avoid overdosing the hardening powder, as this can likewise lead to serious curing problems.

If the pot life (within which good penetration of the substrate is guaranteed) is to be observed, appropriate batch quantities should be estimated. The material must be applied as soon as the hardening powder has finished dissolving in the resin components.

SILIKAL® R 52 resin must be applied evenly (without leaving puddles) by means of a paint roller or brush. If rubber blades are used, the surface must always be rolled with a paint roller afterwards. Matt and heavily absorbent patches must be reprimed wet in wet before hardening until the pores are closed up. Resin consumption is about 0.4 kg/m².

SILIKAL® QS filler of particle size 0.7 – 1.2 mm can be dispersed loosely into the fresh primer coat.

In the case of subsequent coating with SILIKAL® RU 320 or RV 368 resin, SILIKAL® QS filler 0.7 – 1.2 mm (0.2 – 0.5 kg/m²) must always be broadcast in loosely.

SILIKAL® R 52 resin must be completely cured before any further overcoating is applied.

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
				10 kg	10 litres
1	SILIKAL® R 52 resin	100 %		10 kg	10 litres
	Total:	100 %	Average consumption: 400 g/m²	10 kg	10 litres
2	SILIKAL® hardening powder	2 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	200 – 600 g	

Characteristics of R 52 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	270 – 330 mPa · s
Flow time at +20 °C, 4 mm	DIN 53 211	47 – 53 sec.
Density D ₄ ²⁰	DIN 51 757	0.98 g/cm ³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 3 % w/w hardening powder)	approx. 12 min	
Application temperature	+5 °C to +30 °C	

Characteristics of R 52 in the hardened state

Property	Measuring method	Approx. value
Density	DIN 53 479	1.16 g/cm ³
Ultimate elongation	DIN 53 455	7 %
Shore-D	DIN 53 505	70 - 80 units
Water absorption, 4 days	DIN 53 495	125 mg (50 · 50 · 4 mm)
Water vapour permeability	DIN 53 122	1.05 · 10 ⁻¹¹ g/cm · h · Pa

Hardener dosages

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
+5 °C	6.0	15	50
+10 °C	5.0	15	40
+20 °C	3.0	12	35
+30 °C	2.0	12	30

* The quantity of hardener powder is always relative to the quantity of resin.

👁 Further information can be obtained from the separate **SILIKAL® hardening powder** product information sheet.



Other applicable documents

SILIKAL® ZA additive
SILIKAL® hardening powder
General advice on application
The substrate
Information on safety and protection
Storage and transport

Data sheet

SILIKAL® ZA additive
SILIKAL® hardening powder
AVH
DUG
SUS
LUT

SILIKAL® R 62 resin is a medium-viscosity methacrylic resin that is outstandingly suitable for self-levelling coatings of 1 – 4 mm, predominantly indoors, or as a sealant for elastic floorings, outdoors. Coatings with SILIKAL® R 62 resin can bridge cracks to a certain degree. Visually appealing surfaces and systems can be developed when used in conjunction with a variety of fillers, pigments or decorative materials.

SILIKAL® R 62 resin is characterized by good flow properties and therefore tends not to form trowel marks, assuming that the suggested filler recipe is used. The slight plasticization ensures universal application. SILIKAL® R 62 resin is roughly comparable with SILIKAL® R 61 resin in terms of its physical characteristics. SILIKAL® R 62 resin is predominantly recommended for the dispersion of coloured chips (loosely or comprehensively) and for smooth universal shades. The surface is preferably sealed with SILIKAL® R 72 resin.

Use

SILIKAL® R 62 resin is used as a binder in the manufacture of various coating types and recipes. Possible substrates for interiors include concrete, screen and ceramic tiles. A variety of different systems can be formulated from SILIKAL® R 62 resin depending on the application and stresses. Some standard recipes, which can be, or may have to be adapted (if alternative fillers are used) are suggested below. In this regard we suggest that you conduct laboratory tests using your fillers or pigments.

Special advice

Coatings made from SILIKAL® R 62 resin must not normally be rolled with a spiked roller, as otherwise the protective paraffin film cannot form.

1. Rollable wall coating

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® R 62 resin	69 %		20 kg	20 litres
2	SILIKAL® QM filler	25 %		8 kg	approx. 8.6 litres
3	SILIKAL® pigment	5 %		1.5 kg	
4	SILIKAL® TA2 anti-flow additive	1 %		300 g	
	Total:	100 %	Average consumption: 1.3 kg/m² per mm thickness	29.8 kg	approx. 23 litres
5	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	200 – 1200 g	

SILIKAL® R 62 resin must always be applied directly on the primer and to a depth of at least 1 mm, otherwise hardening problems might occur due to insufficient polymerisation energy. If there is already a methacrylic-based coating on the wall (e.g. concave moulding), the minimum thickness can be 0.5 mm. Since coatings for vertical application have to be made thixotropic, a visually appealing smooth surface is no longer guaranteed. We therefore recommend that large-area wall coatings are not applied by rolling and that this is instead restricted to the skirting area. To achieve a greater coating depth SILIKAL® R 62 resin can be applied several times after each previous coat has dried out thoroughly. To ensure better dirt repulsion SILIKAL® R 72 resin is required as the last sealant.

The mixture must be dispersed by means of a dissolver, making sure there are no lumps and can be stored stably for several months in small containers. The containers must be stirred intensively before being used again.

2. Thin coating 1 – 2 mm for moderate stresses

(Use in systems C, D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® R 62 resin	47 %		20 kg	20 litres
2	SILIKAL® SV filler	50 %		20 kg	approx. 22 litres
3	SILIKAL® pigment	3 %		1 kg	
	Total:	100 %	Average consumption: 1,5 kg/m² per mm thickness	41 kg	approx. 27 litres
4	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	200 – 1200 g	

Floorings under this system are suitable for mechanically well-structured concrete surfaces, particularly corridors, storage facilities, technical rooms, garages, laundry cellars etc..

3. Top coat 3 – 4 mm

(Use in system C)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® R 62 resin	33 %		13 kg	13 litres
2	SILIKAL® SV filler	65 %		25 kg	approx. 22 litres
3	SILIKAL® pigment	2 %		1 kg	
	Total:	100 %	Average consumption: 1.7 kg/m² per mm thickness	39 kg	approx. 23 litres
4	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	130 – 780 g	

This variant is the most common industrial floor coating for a smooth surface finish. A depth of 4 mm is preferred, particularly for fork-lift truck and heavy rolling traffic.

Because of the thermoplastic nature of SILIKAL® R 62 resin in the unsealed state, the braking actions of conveyor vehicles can lead to brake tracks at times of intensive stress, which in simple cases can be eliminated by means of suitable cleaning agents. However, this risk can be avoided by driving appropriately or using white rubber tyres.

4. Colourless sealant

(Use in system D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 62 resin	100 %		10 kg	10 litres
	Total:	100 %	Average consumption: 600 g/m²	10 kg	10 litres
2	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	100 – 600 g	

5. Pigmented sealant

(Use in system D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 62 resin	90 %		9 kg	9 litres
2	SILIKAL® pigment	10 %		1 kg	
	Total:	100 %	Average consumption: 600 g/m²	10 kg	approx. 9.5 litres
3	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See "Hardener dosages" table for quantities	90 - 540 g	

Characteristics of R 62 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	150 – 180 mPa · s
Flow time at +20 °C, 4 mm	DIN 51 211	40 – 50 sec.
Density D ₄ ²⁰	DIN 51 757	0.98 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % w/w hardening powder)		approx. 15 min
Application temperature		0 °C to +35 °C

Characteristics of the self-levelling 3 – 4 mm flooring

Property	Measuring method	Approx. value
Compressive strength	DIN 1164	45 N/mm²
Tensile strength in bending	DIN 1164	25 N/mm²
Specific weight		1.7 g/cm³
Pot life at +20 °C		12 - 15 min

Hardener dosages

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
0 °C	6.0	20	50
+10 °C	5.0	20	45
+15 °C	3.0	15	40
+20 °C	2.0	15	40
+25 °C	1.5	12	35
+30 °C	1.0	12	30

* The quantity of hardener powder is always relative to the quantity of resin.

👁 Further information can be obtained from the separate "SILIKAL® hardening powder" product information sheet.

Other applicable documents	Data sheet
SILIKAL® ZA additive	SILIKAL® ZA additive
SILIKAL® hardening powder	SILIKAL® hardening powder
General advice on application	AVH
The substrate	DUG
Fillers and pigments	FUP
Chemical resistance	CBK
Information on safety and protection	SUS
Storage and transport	LUT
General cleaning advice	ARH

SILIKAL® RU 727 resin is a low-viscosity, transparent, solvent-free 3-component methacrylic resin with enhanced substrate adhesion.

Use

SILIKAL® RU 727 resin is used as a primer on concrete, cement and asphalt substrates and as an intermediate primer on existing coatings. SILIKAL® RU 727 resin can be used on metal and ceramic substrates if SILIKAL® Additive M bonding agent is used. As a primer on mineral substrates with subsequent colour sealing, SILIKAL® RU 727 resin must also be in pigmented form. In the case of colour sealing on asphalt, pigmented SILIKAL® RU 727 resin can be applied directly, but a careful inspection of the substrate is absolutely essential here. If the inherent strength is sufficient, it is only possible to seal or coat asphalt substrates in interior rooms that are as tightly temperature-controlled as possible.

Advice on application

Once the substrate has been inspected, it normally needs to be pre-treated. The necessary quantity of hardener must be adjusted in light of the temperature of the building. For exact details, please refer to the table **Hardener dosages**. You must not use less than the given quantity of hardening powder, as this will jeopardise the curing process. You must also avoid using too much of the hardening powder, as this can likewise lead to serious curing problems.

SILIKAL® RU 727 resin must be applied evenly (without leaving puddles) by means of a paint roller. Matt and heavily absorbent patches must be reprimed wet in wet before hardening, until the pores are closed up. Further coats should be applied within 24 hours of hardening.

To produce SILIKAL® RU 727 resin in pigmented form, first disperse approx. 10 % w/w of SILIKAL® pigment powder into the SILIKAL® RU 727 resin (5.3 kg of resin) using an agitator unit, making sure there are no lumps, then add in and mix the other components (SILIKAL® Additive I, SILIKAL® hardening powder and if necessary SILIKAL® Additive M).

SILIKAL® RU 727 resin must be completely cured before any overcoating is applied.

Special advice

SILIKAL® RU 727 resin reaches its end physical properties in terms of compressive strength, final adhesion etc. after a post-reaction period which may last several days.

1. Priming

(Use in systems A – D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 727 resin	84.1 %		5.3 kg	5.3 litres
2	SILIKAL® Additive I	15.9 %		1.0 kg	1.0 litres
	Total:	100 %	Average consumption: 400 g/m²	6.3 kg	approx. 6.3 litres
3	SILIKAL® hardening powder	2 – 5 %, relative to item 1 + 2	See “Hardener dosages” table for quantities	130 - 320 g	

2. Alternative priming for tiles

(Use in systems B, C, D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 727 resin	83.9 %		5.3 kg	5.3 litres
2	SILIKAL® Additive I	15.8 %		1.0 kg	1.0 litres
3	SILIKAL® Additive M	0.3 %		19 g	15 ml
	Total:	100 %	Average consumption: 400 g/m²	6.32 kg	approx. 6.3 litres
4	SILIKAL® hardening powder	3 – 6 %, relative to item 1 + 2*	See “Hardener dosages” table for quantities	200 - 400 g	

* Because of the use of SILIKAL® Additive M, the quantity of hardener increases by 1 % compared with the “Hardener dosages” table (cf. also Priming system A).

3. Thin coating

(Use in system A)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 727 resin	54.0 %		5.3 kg	5.3 litres
2	SILIKAL® Additive I	10.2 %		1.0 kg	1.0 litres
3	SILIKAL® QM filler	30.6 %		3.0 kg	approx. 3.2 litres
4	SILIKAL® pigment	5.2 %		500 g	
	Total:	100 %	Average consumption: 500 – 600 g/m²	approx. 9.8 kg	approx. 7.3 litres
5	SILIKAL® hardening powder	2 – 5 %, relative to item 1 + 2	See “Hardener dosages” table for quantities	130 - 320 g	

4. Pigmented sealant

(Use in system A)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 727 resin	76.5 %		5.3 kg	5.3 litres
2	SILIKAL® Additive I	14.4 %		1.0 kg	1.0 litres
3	SILIKAL® pigment	9.1 %		630 g	
	Total:	100 %	Average consumption: 400 g/m²	approx. 7 kg	approx. 7 litres
4	SILIKAL® hardening powder	2 – 5 %, relative to item 1 + 2	See “Hardener dosages” table for quantities	130 - 320 g	

Characteristics of RU 727 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	170 – 220 mPa · s
Flow time at +20 °C, 4 mm	DIN 53 211	38 – 42 sec.
Density D ₄ ²⁰	DIN 51 757	0.99 g/cm ³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 3 % w/w hardening powder)	approx. 15 min	
Application temperature	0 °C to +35 °C	

Characteristics of RU 727 in the hardened state

Property	Measuring method	Approx. value
Density	DIN 53 479	1.16 g/cm ³
Ultimate elongation	DIN 53 455	28 %
Shore-D	DIN 53 505	65 - 75 units
Water absorption, 4 days	DIN 53 495	125 mg (50 · 50 · 4 mm)
Water vapour permeability	DIN 53 122	1.05 · 10 ⁻¹¹ g/cm · h · Pa

Mixing ratio RU 727 resin / Additive I

Component	Quantity in kg	Quantity in litres
SILIKAL® RU 727 resin	5.3	5.3
SILIKAL® Additive I	1.0	1.0

Plus BPO hardening powder to the total quantity (6.3 kg) according to the **Hardener dosages**
Greater or lesser batch quantities presuppose that the **ratio of SILIKAL® RU 727 resin to SILIKAL® Additive I = 5.3 : 1** is always observed.

Example: Batch quantity 1 kg:

0.84 kg SILIKAL® RU 727 resin + 0.16 kg SILIKAL® Additive I plus hardening powder for 1 kg according to the table.

Hardener dosages

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
0 °C	5.0	20	60
+10 °C	4.0	15	40
+20 °C	3.0	15	40
+30 °C	2.0	10	25

* The quantity of hardener powder is always relative to the quantity of resin including SILIKAL® Additive I.

👁 Further information can be obtained from the separate "**SILIKAL® hardening powder**" product information sheet.

👁	Other applicable documents	Data sheet
	SILIKAL® additives	SILIKAL® Additive I SILIKAL® Additive M
	SILIKAL® hardening powder	SILIKAL® hardening powder
	General advice on application	AVH
	The substrate	DUG
	Fillers and pigments	FUP
	Chemical resistance	CBK
	Information on safety and protection	SUS
	Storage and transport	LUT
	General cleaning advice	ARH

SILIKAL® RV 368 resin

Reactive, impact-resistant resin with low-temperature flexibility
for self-levelling coatings



SILIKAL® RV 368 resin is a solvent-free, 2-component methacrylic resin of high impact resistance and low-temperature flexibility, whose highly-molecular structure makes it outstandingly suitable for top coats (self-levelling) subject to extreme stresses, predominantly outdoors, or for cold stores. Coatings made from SILIKAL® RV 368 resin are durably elastic and able to bridge cracks.

SILIKAL® RV 368 resin is characterised by outstanding impact resistance. Its high elasticity ensures lasting crack bridging, so that substrate movements can be better absorbed. The good low-temperature flexibility improves its behaviour outdoors in the event of changes in climate, or load stresses on bridge roadways or in cold stores. Because of the high viscosity, the coarse particles of the filler remain longer in the self-levelling recipe suspension, so that no separation between fine and coarse particles occurs within the flooring (particle homogeneity). This has a further beneficial effect on crack bridging.

When combined with fine filler, SILIKAL® RV 368 resin can also be used as a 1 – 1.5 mm membrane coat underneath normal flooring systems of SILIKAL® R 61 resin, SILIKAL® R 62 resin or SILIKAL® RV 368 resin in order to improve impact resistance and crack bridging (tight to liquids).

Use

SILIKAL® RV 368 resin is used as a binder in the manufacture of various coating types and recipes. Indoors, it can be coated on the following substrates: concrete, screed, ceramic tiling, asphalt and steel.

Outdoors SILIKAL® RV 368 resin, (like all other Silikal resins) must not be laid on asphalt surfaces because otherwise cracks may be expected to form, particularly on large surfaces. The various substrates must be primed in accordance with our general recommendations (see literature on substrates).

Membrane coat

SILIKAL® RV 368 resin must always be applied with a minimum thickness of 1 mm. Mixtures in a ratio of 2:1 to 3:1 with SILIKAL® QM filler have proved to be appropriate. Membrane coats must not be sanded over their full area before being covered over with SILIKAL® R 61, SILIKAL® R 62 or SILIKAL® RV 368 resin self-levelling mortars. For example membrane coats are advisable on blasted sheet steel, critical substrates, or if there are particular mechanical stresses.

Top coat

For the main coat, a differentiation must be made between 2 filler recipes. The finer is used in the manufacture of thinner toppings of 2 – 4 mm, the coarser for thicker coats of 4 – 7 mm. The recommended strewing sand SILIKAL® QS filler of particle size 0.7 – 1.2 mm is absolutely essential, as this ensures the surface straining point. Dried basalt chippings or coarse quartz sand is also suitable for strewing over areas subject to traffic.

1. Stonechip-filled stopper

(Use in systems B, C, D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® RV 368 resin	35 %		13.5 kg	13.5 litres
2	SILIKAL® SL filler	65 %	1 sack	25.0 kg	approx. 18 litres
	Total:	100 %	Average consumption: 1.6 kg/m² per mm thickness	38.5 kg	approx. 24 litres
3	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	135 - 810 g	

In the case of stonechip-filled stopper coats of less than 1 mm, it is recommended that the resin content of the mixture be increased from 35 % to 40 – 50 %.

SILIKAL® RV 368 resin

Reactive, impact-resistant resin with low-temperature flexibility
for self-levelling coatings



2. Self-levelling flowing topping 2 – 4 mm

(Use in system D or as stonechip-filled stopper)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1*	SILIKAL® RV 368 resin	35 %		14 kg	14 litres
2**	SILIKAL® SV filler	65 %	1 sack	25 kg	approx. 22 litres
	Total:	100 %	Average consumption: 1.6 kg/m² per mm thickness	39 kg	approx. 24 litres
3	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	140 - 840 g	

* If used as a thin coating in outdoor applications, e.g. as a bridge parapet or multi-storey car park coating, the resin content must be increased from 35 % to 50 %, with 50 % SILIKAL® SV filler.

** SILIKAL® SL filler (contains no quartz sand) can be used instead of SILIKAL® SV filler.

3. Self-levelling flowing topping 4 – 7 mm

(Use in system D)

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® RV 368 resin	30 %		16 kg	16 litres
2	SILIKAL® QM filler	20 %		10 kg	approx. 11 litres
3	SILIKAL® SL filler	50 %	1 sack	25 kg	approx. 18 litres
	Total:	100 %	Average consumption: 1.7 kg/m² per mm thickness	51 kg	approx. 30 litres
4	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	160 - 960 g	

Special advice

Because of the high elasticity, no hard materials may be used as the overcoating/sealant. If a hard sealant is nevertheless required for reasons of resistance to chemicals, e.g. SILIKAL® R 72 resin, the surface must be pre-sealed with a semi-elastic intermediate sealant (e.g. SILIKAL® R 62 resin).

Extremely high spot stresses may result in slight indentations in the surface, but these are largely reversible.

Characteristics of RV 368 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	1000 mPa · s
Flow time at +20 °C, 6 mm	ISO 2431	135 – 165 sec.
Density D ₄ ²⁰	DIN 51 757	0.98 g/cm ³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % w/w hardening powder)	approx. 15 min	
Application temperature	+5 °C to +30 °C	

Characteristics of the self-levelling flowing topping 4 - 7 mm

Property	Measuring method	Approx. value
Compressive strength	DIN 1164	25 N/mm ²
Tensile strength in bending	DIN 1164	15 N/mm ²
Specific weight		1.7 g/cm ³

Hardener dosages

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
+5 °C	6.0	20	60
+10 °C	4.0	15	40
+15 °C	3.0	15	40
+20 °C	2.0	15	40
+25 °C	1.5	12	30
+30 °C	1.0	10	25

* The quantity of hardener powder is always relative to the quantity of resin.

👁 Further information can be obtained from the separate **SILIKAL® hardening powder** product information sheet.



Other applicable documents

SILIKAL® ZA additive
SILIKAL® hardening powder
General advice on application
The substrate
Fillers and pigments
Chemical resistance
Information on safety and protection
Storage and transport
General cleaning advice

Data sheet

SILIKAL® ZA additive
SILIKAL® hardening powder
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Data sheet for SILIKAL® RV 368

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SILIKAL® RU 320 resin is a modified methacrylic resin of high elasticity whose highly molecular structure and extensibility makes it suitable as a binder for the manufacture of liquid films for sealing mineral substrates made of concrete either outdoors or indoors.

SILIKAL® RU 320 resin has long-lasting extensibility and guarantees better absorption of substrate movements. Because of the surface tackiness (due to the materials) the coating surfaces can tend to become contaminated, which is why we advise medium grey shades. Since a seal made from SILIKAL® RU 320 resin is generally covered by tiles, screed or a further coat, this contamination can be ignored. Coatings made from SILIKAL® RU 320 resin must always be stabilised with 2 – 5 % pigment powder.

To find the optimal solution to the many different problems that can occur in structures, please discuss your application with our technical department.

Use

Certified seal for balconies, ceilings and flat roofs covered with tiles or screed

After preparing the concrete (removing cement sludge, dust, etc.), cut cracks open to a width/depth of approx. 3 – 5 mm. Then prime the concrete with SILIKAL® R 51 resin and fill the opened cracks with SILIKAL® RU 320 resin until flush with the surface. After curing, the compound made from SILIKAL® RU 320 resin can be applied over a large area (and without causing bubbles) to a thickness of approx. 1 – 1.5 mm, using a short-haired roller (mohair plush), toothed stopper or smoothing trowel. The coating must also be pulled up a few centimetres at joins to walls, pillars etc. so as to avoid water migrating behind if the floor is not level. After curing, a 2nd coat of the same thickness is applied. If working with tile adhesives, the 2nd coat must be broadcast liberally with SILIKAL® QS filler of particle size 0.7 – 1.2 mm before hardening, in order to ensure interim adhesion. If screed is laid floating, this sand does not need to be broadcast in. A 2-layer seal produced in this way has a thickness of 2 – 2.5 mm.

Test certificates as per the “Test principles for liquid sealing materials used in conjunction with tiles and paving” with the following test classes exist for these applications (specified tile adhesive on request).

- | | |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Area of application A: | Wall (A1) and floor surfaces (A2) heavily exposed to service and cleaning water in wet rooms, e.g. swimming pool walkways and public showers. |
| Area of application B: | Wall and floor surfaces of swimming pools containing water with potable properties indoors and outdoors. Additional individual certificates are required for mineral and salt pools. |
| Area of application C: | Wall and floor surfaces in industrial premises, including those exposed to chemicals (e.g. car-wash installations, large kitchens, food processing). Does not apply for rooms that require approval as installations using water-polluting substances pursuant to section 19 WHG [German Water Management Act]. |

SILIKAL® RU 320 resin sealing compound equally fulfils the practical requirements when used as a liquid film or a membrane resin below normal Silikal floor coatings. However, there are no individual test certificates in the system.

If SILIKAL® RU 320 resin sealing compound is used as the sole coating on concrete flat roofs without an additional covering. A water-impermeable membrane that is able to prevent water damage in the rooms underneath can be achieved using SILIKAL® RU 320 resin. However, there is no test certificate as a “flat roof seal” (not combined with paving) and this would have to be requested separately by the user when the need arises.

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 320 resin	74 %		7.4 kg	7.4 litres
2	SILIKAL® QM filler	20 %		2.0 kg	approx. 2.1 litres
3	SILIKAL® pigment	5 %		500 g	
4	SILIKAL® TA2 anti-flow additive	1 %		100 g	
	Total:	100 %	Average consumption: 1.3 kg/m² per mm thickness	10 kg	approx. 7.7 litres
5	SILIKAL® hardening powder	1 – 6 %, relative to item 1	See “Hardener dosages” table for quantities	75 - 450 g	

The dissolver must have explosion protection at moderate rotational speed. You must watch for increases in the temperature of the material which must not normally be allowed to exceed +35 °C during dispersion.

Characteristics of RU 320 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	300 – 500 mPa · s
Flow time at +20 °C, 6 mm	ISO 2431	80 – 110 sec.
Density D ₄ ²⁰	DIN 51 757	0.99 g/cm ³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % w/w hardening powder)	12 - 15 min	
Application temperature	+0 °C to +30 °C	
Extensibility when hardened	180 % at +23 °C	

Hardener dosages

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
0 °C	6.0	20	80
+5 °C	5.0	20	60
+10 °C	4.0	15	40
+15 °C	3.0	15	40
+20 °C	2.0	15	40
+25 °C	1.5	10	30
+30 °C	1.0	8	25

* The quantity of hardener powder is always relative to the quantity of resin.

👁 Further information can be obtained from the separate **SILIKAL® hardening powder** product information sheet.



Other applicable documents

SILIKAL® hardening powder
General advice on application
The substrate
Fillers and pigments
Chemical resistance
Information on safety and protection
Storage and transport
General cleaning advice

Data sheet

SILIKAL® hardening powder
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Data sheet for SILIKAL® RU 320

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SILIKAL® Additive I is a polyisocyanate-based methacrylic resin. It is a constituent of the urethane-modified reactive resin SILIKAL® RU 727 (see relevant product data sheet).

Use

To bind surface moisture and on slightly moist substrates, a proportion of 10 – 15 % w/w of SILIKAL® Additive I can be added to the primer resin SILIKAL® R 51. The penetrative capacity and the hardening times of the primer are hardly influenced by the admixture. However, you must ensure that subsequent coats with the corresponding Silikal reactive resins are applied within 8 hours.

Characteristics of Additive I as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	approx. 70 mPa · s
Flow time at +20 °C, 4 mm	DIN 53 211	18 – 21 sec.
Density D ₄ ²⁰	DIN 51 757	1.07 g/cm ³
Flash point	DIN 51 755	+10 °C



Other applicable documents

SILIKAL® hardening powder
General advice on application
Chemical resistance
Information on safety and protection
Storage and transport
General cleaning advice

Data sheet

SILIKAL® hardening powder
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SILIKAL® Additive M is a bonding enhancer for ceramic, metal and other poorly absorbent substrates.

SILIKAL® Additive M is employed solely in combination with the urethane-modified reactive resin SILIKAL® RU 727. It is essential that the required quantity of max. 0.3 % w/w (relative to the resin content) is not exceeded, as a higher dosage will lead to curing problems.

Resins mixed with SILIKAL® Additive M are not stable for storage. It is therefore important that it is not added until immediately before application. In the premixed condition SILIKAL® Additive M loses its effectiveness after about 2 hours.

Recommended batch quantity:

5.3 kg SILIKAL® RU 727 resin
1.0 kg SILIKAL® Additive I
19 g SILIKAL® Additive M (0.3 % w/w)

Characteristics of Additive M as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	approx. 60 mPa · s
Flow time at +20 °C, 4 mm	DIN 53 211	17 – 20 sec.
Density D ₄ ²⁰	DIN 51 757	1.21 g/cm ³
Flash point	DIN 51 755	+15 °C

You must remember that admixing SILIKAL® Additive M will result in a slight delay in the curing process and an intensive yellowing of the resin. It is therefore recommended that the quantity of hardener be increased by 1 % on the quantity indicated under SILIKAL® RU 727 resin in the “Hardener dosages” table.

For the required quantity of hardener for applying SILIKAL® RU 727 resin in combination with SILIKAL® Additive M, please refer to the following table.

Hardener dosages for RU 727 in combination with Additive M

Temperature	Hardening powder % w/w*	Pot life approx. min.	Hardening time approx. min.
0 °C	6.0	20	60
+10 °C	5.0	15	40
+20 °C	4.0	15	40
+30 °C	3.0	10	25

* The quantity of hardener powder is always relative to the quantity of resin including SILIKAL® Additive I.

👁 Further information can be obtained from the separate **SILIKAL® hardening powder** product information sheet.



Other applicable documents

SILIKAL® hardening powder
General advice on application
Information on safety and protection
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Data sheet for SILIKAL® Additive M

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The manufacture of polymer plastics through the interlinking of many small molecules is known as polymerisation (hardening). In Silikal reactive resins this hardening mechanism is triggered by the addition of a hardening powder (dibenzyl peroxide, or BPO for short). The hardening powder sets off a chain reaction and can therefore be regarded as the trigger for a chemical reaction.

Dosage

The quantity of hardening powder required depends on temperature and can be taken from the relevant product data sheets in the **Hardener dosages** table. The quantities of hardening powder are indicated as a percentage by weight, relative to the proportion of resin.

More hardening powder is advisable for

1. thin coat thickness
2. higher degree of filling

Less hardening powder is advisable for

1. coating over thicker old methacrylic coatings
2. sealing self-levelling unbroadcast methacrylic coatings

However, you must not use less than the quantities of hardening powder indicated in the respective product data sheets, as this will jeopardize the curing process. You must also avoid overdosing the hardening powder, as this can likewise lead to serious curing problems, triggered by excessive temperatures.

Hardener quantities are best measured by means of an electronic scale. Should there be no scale on the building site, graduated measuring beakers can be used instead; in this case the quantity of hardener must be converted from weight to volume. Measuring beakers with a special BPO scale can be obtained from Silikal.

To convert from weight to volume, apply the following basic rule of thumb:

Quantity of hardening powder in g x 1.5 = volume of hardening powder in ml

Here's an example:

Batch quantity of SILIKAL® R 51 resin: 1.0 kg

According to the "Hardener dosages" table, at +20 °C 3 % by weight of hardening powder must be added.

3 % by weight of 1.0 kg of R 51 is 30 g, i.e. 30 g of hardening powder must be added to 1.0 kg of SILIKAL® R 51 resin.

Convert from g to ml using the following formula:

30 g x 1.5 = 45 ml

Advice on application

The hardening powder must not be added to the corresponding Silikal reactive resin and resin/filler mix until immediately before application. In the case of pourable mixes, the hardener should be the last component added, while for mortars or very thixotropic resins the full amount of filler or thixotropic agent should be stirred in first. Only in this way can the hardener dissolve evenly within the mixture.

The hardening powder must always be stirred into the corresponding mixture or the pure resin until it has completely dissolved. Stirring time will depend on the nature and the condition of the mixing equipment used and on the temperature of the material.



BPO hardening powder must never come into contact with ZA accelerator additive (see product data sheet) as this can lead to an uncontrollable explosion. Both substances must be stirred separately into the coating mass (stir before adding!).

Metal vessels (e.g. beakers, shovels) are not suitable for handling BPO hardening powders. Lengthy contact could cause an explosion!

Special advice

In practice, there is a risk that circumstances which cannot always be foreseen in advance (e.g. poor ventilation, colder substrate, very fine sand, thinner coats, or a combination of such circumstances) may lead to slight (possibly only localised) hardening problems. In this case the quantity of hardener should be increased as a precaution by 0.5 – 1 % on the quantity recommended in the tables.



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