Silikal®

Protecting floors and buildings.

Silikal Technical Documentation

PMMA heavy-duty sealants

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 specialities, 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

Our products are certified by HACCP international

Our products comply with the Halal european guidelines

Silikal® made in Germany since 1951

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mail@silikal.de

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**

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Technical Documentation
Issue HLA 3.01.A
January 2020

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 shouls 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.

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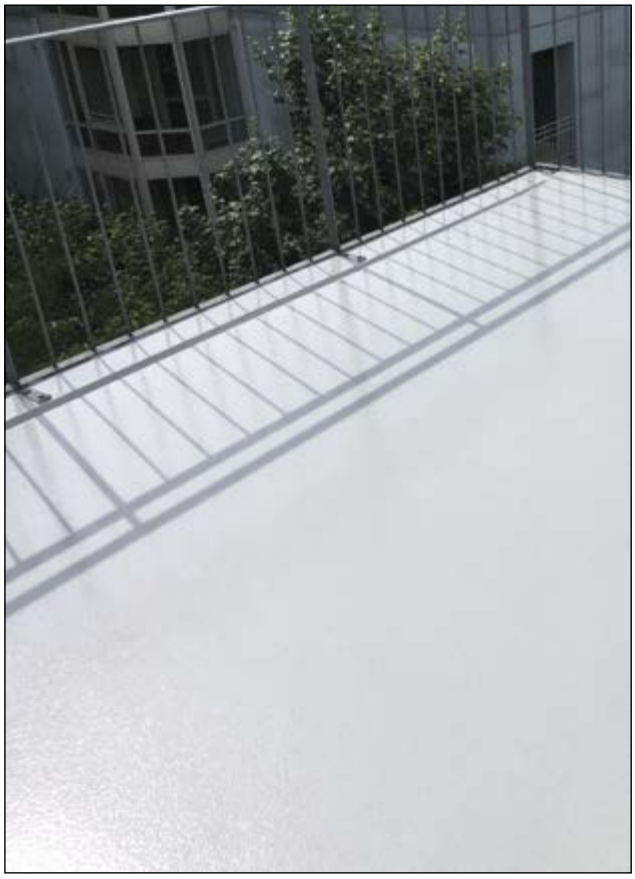

Pictures at top:
balcony and roof sealing

Flat roof sealing of a
double garage

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Surface seal in underground area

Sealing of concrete construction joints

Sealing of construction joints

Sealing of washing bay

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All pictures on this page:
terrace/stair/
balcony sealing
and coating

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All pictures on this page:
sealing of threshold
connections and
material transitions

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Movement joint/dilatation joint

Surface seals

Component connection/surface seal

Pipe lead-through and joint seal

Pipe lead-throughs

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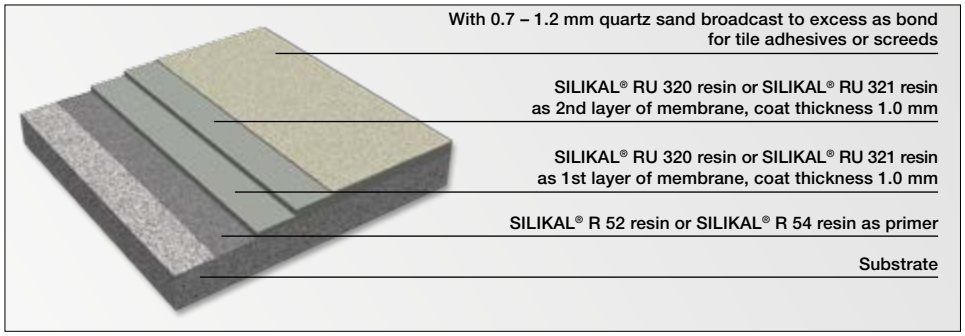
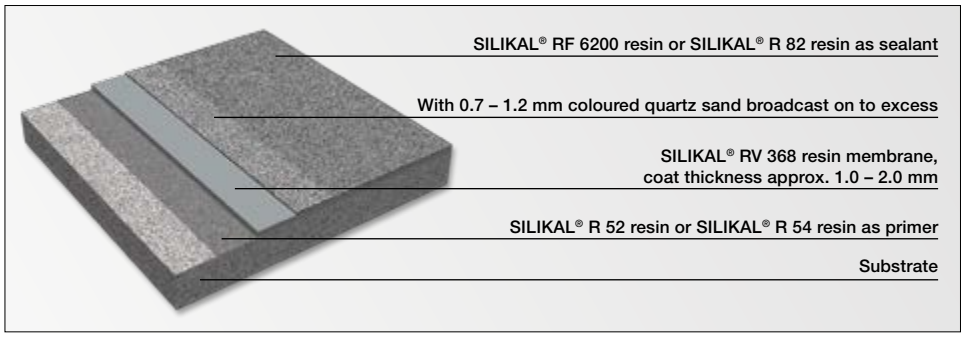
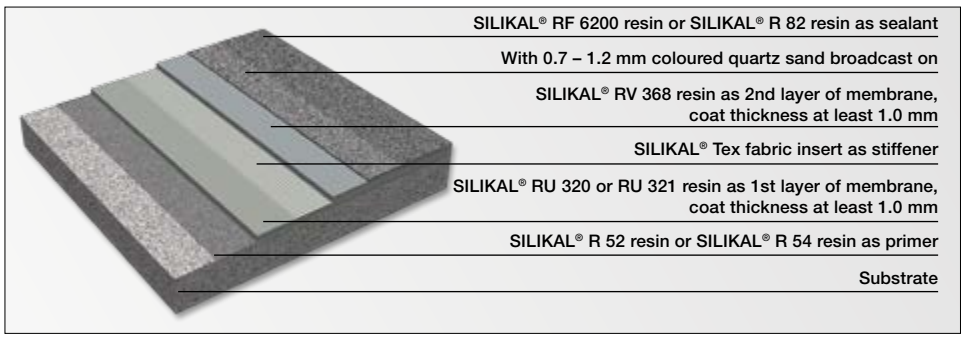
Surface seal for structures in contact with ground



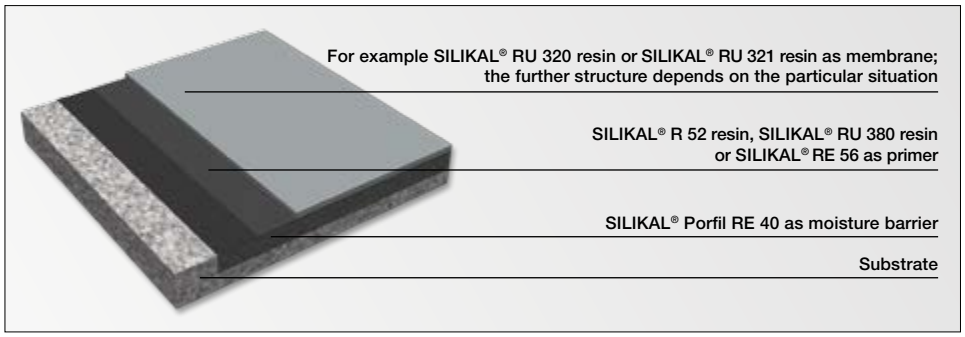
Surface seal under tiles/ slabs and screed



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

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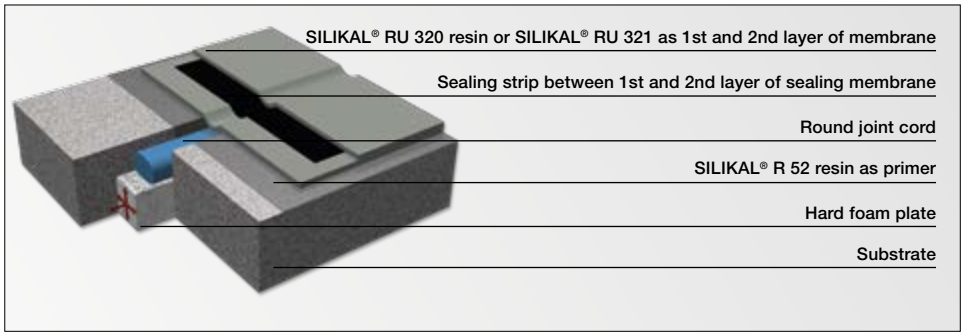
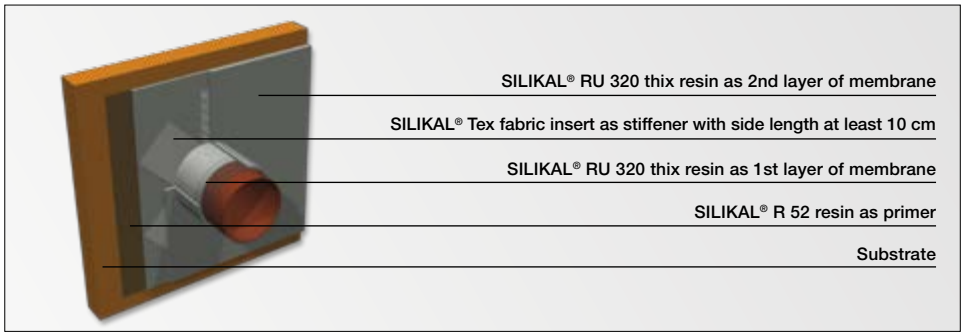
Crack with dynamic movement and active water stress (no negative water pressure)

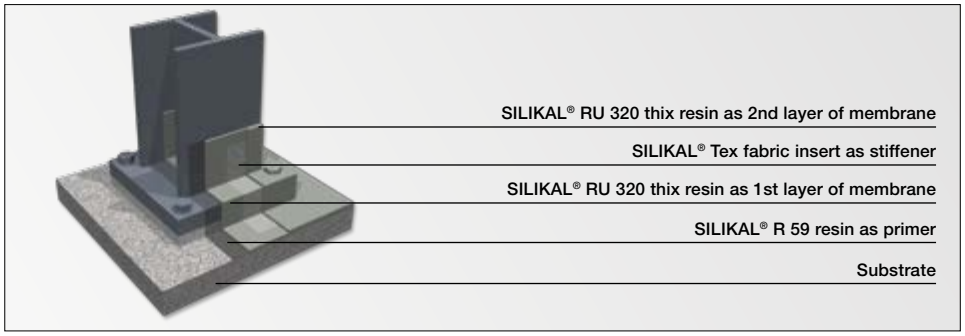


Movement/dilatation joint

Upstand and splay/ material change



Pipe lead-through



Steel support join

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Technical Documentation
Issue HLA 3.01.A
January 2020

SILIKAL® R 52 resin

Reactive, medium-viscosity primer for cement substrates

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 higher viscosity makes SILIKAL® R 52 resin more suitable than SILIKAL® R 51 resin for priming vertical and absorbent substrates with sufficient strength.

Application

SILIKAL® R 52 resin is used as an adherent 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 dose less than the given quantity of hardening powder, as this will jeopardize 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® Filler QS 0.7 – 1.2 mm can be sprinkled loosely into the fresh primer coat.

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

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

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
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 % related to item 1	See “Hardener dosages” table for quantities	200 – 600 g	

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SILIKAL® R 52 resin

Reactive, medium-viscosity primer for cement substrates

Protecting floors and buildings.

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 cup	DIN 53 211	47 – 53 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, 3 % pbw. 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/cm³
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 % pbw. *	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 hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

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10[1)]
R 52 - 001
EN 13813 SR-AR1-B1,5-IR4
Synthetic resins for internal uses
(Application in accordance with the newest technical information)

Reaction to fire:	E_{fl}
Release of corrosive substances (Synthetic Resin Screed):	SR
Water permeability:	NPD [2)]
Wear resistance (Abrasion Resistance):	AR 1 [3)]
Bond strength:	B 1,5
Impact resistance:	IR 4
Sound insulation:	NPD [2)]
Sound absorption:	NPD [2)]
Thermal resistance:	NPD [2)]
Chemical resistance:	NPD [2)]

CE-labelling

[1)] Last two digits of the year in which the ce marking was affixed.
[2)] NPD = No performance determined.
[3)] Refers to a smooth surface without broadcasting.

Other applicable documents	Data sheet
SILIKAL® Additive ZA	SILIKAL® Additive ZA
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	AVH
The substrate	DUG
Information on safety and protection	SUS
Storage and transport	LUT

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SILIKAL® R 54 resin

Reactive, medium-viscosity primer for cement substrates with optimised bonding on damp concrete

SILIKAL® R 54 resin is a medium-viscosity, transparent, solvent-free 2-component methacrylic resin with good penetration properties and optimised bonding on damp concrete.

Application

SILIKAL® R 54 resin is used as an adherent primer on concrete and cement substrates.

Advice on application

Once the substrate has been inspected, it normally needs to be pre-treated. As a minimum requirement a pull-off strength of 25 N/mm² is needed. The substrate has to be sound, free of contamination and cement laitance.

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 dose less than the given quantity of hardening powder, as this will jeopardize 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 54 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. If SILIKAL® R 54 resin should be used on a damp concrete 0.3 wht-% SILIKAL® Additive M (calculated on the amount of resin) has to be added. SILIKAL® Additive M has to be added right before application. On top of the substrate a liquid film of water is not allowed.

On damp concrete two priming layers are recommended. Do not sprinkle this fist layer. The second layer could be sprinkled loosely into the fresh coat.

Resin consumption is about 0.4 kg/m².

SILIKAL® Filler QS 0.7 – 1.2 mm can be sprinkled loosely into the fresh primer coat.

SILIKAL® R 54 resin must be completely cured before any further coat is applied.

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 54 resin	100 %		10 kg	10 litres
	Total:	**100 %**	**Average consumption: 400 g/m²**	**10 kg**	**10 litres**
2	SILIKAL® hardening powder	1 – 3.5 % related to item 1	See “Hardener dosages” table for quantities	100 – 350 g	

Characteristics of R 54 as delivered

Property	Measuring method	Approx. value
Flow time at +20 °C, 4 mm cup	DIN 53 211	34 – 40 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, 1.5 % pbw. hardening powder)	approx. 10 – 12 min.	
Application temperature	+5 °C to +30 °C	

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SILIKAL® R 54 resin

Reactive, medium-viscosity primer for cement substrates with optimised bonding on damp concrete

Protecting floors and buildings.

Characteristics of R 54 in the hardened state

Property	Measuring method	Approx. value
Density	DIN 53 479	1.16 g/cm³
Ultimate elongation	DIN 53 455	7 %
Shore-D	ISO 868	70 – 80 units
Water absorption, 4 days	DIN 53 495	150 mg (50 · 50 · 4 mm)
Water vapour permeability	DIN 53 122	1.05 · 10^{-11} g/cm · h · Pa

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
+5 °C	2.5	14 – 16	50 – 60
+10 °C	2.0	12 – 14	45 – 55
+15 °C	2.0	10 – 12	40 – 50
+20 °C	1.5	10 – 12	35 – 45
+25 °C	1.5	8 – 10	30 – 40
+30 °C	1.0	8 – 10	30 – 40

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

Hardener dosage in presence of 0.3 % pbw. of Silikal® Additive M on top of a damp concrete

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
+5 °C	3.5	14 – 16	50 – 60
+10 °C	3.0	12 – 14	45 – 55
+15 °C	3.0	10 – 12	40 – 50
+20 °C	2.5	10 – 12	35 – 45
+25 °C	2.5	8 – 10	30 – 40
+30 °C	2.0	8 – 10	30 – 40

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

CE

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10[1]
R 54 - 001
EN 13813 SR-AR1-B1,5-IR4
Synthetic resins for internal uses
(Application in accordance with the newest technical information)

Reaction to fire:	E_{fl}
Release of corrosive substances (Synthetic Resin Screed):	SR
Water permeability:	NPD [2]
Wear resistance (Abrasion Resistance):	AR 1 [3]
Bond strength:	B 1,5
Impact resistance:	IR 4
Sound insulation:	NPD [2]
Sound absorption:	NPD [2]
Thermal resistance:	NPD [2]
Chemical resistance:	NPD [2]

CE-labelling

[1] Last two digits of the year in which the ce marking was affixed.
[2] NPD = No performance determined.
[3] Refers to a smooth surface without broadcasting.

Other applicable documents	Data sheet
SILIKAL® Additive M	SILIKAL® Additive M
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	AVH
The substrate	DUG
Information on safety and protection	SUS
Storage and transport	LUT

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SILIKAL® R 59 resin

Reactive, high-viscosity primer for metallic substrates

Properties

- Primer with very good adhesion to many metals
- Rapid curing even at low temperatures

Application

SILIKAL® R 59 resin is a high-viscosity, solvent-free 2-component methacrylate resin with very good adhesion on metals such as untreated steel, stainless steel (V2A), aluminium and galvanised sheet metal and other **non-absorbent** substrates. Curing and adhesion tests generally have to be carried out.

Advice on application

The surfaces to be primed must be dry, firm and load-bearing and also free of dust, oil and grease and other coatings which could act as a separating layer. Steel substrates must be derusted and prepared to SA 2 ½ in accordance with DIN 55929. Non-ferrous metals must be cleaned and prepared by sanding or blasting.

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

You must not dose 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.

The material must be applied as soon as the hardening powder has finished dissolving in the resin components. Mixing time approx. 3 minutes.

SILIKAL® R 59 resin primer must be fully hardened before any further finishing with subsequent MMA systems can be applied.

Processing is performed using a short-pile solvent-resistant paint roller.

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 59 resin	100 %		10 kg	10 litres
	Total:	**100 %**	**Average consumption: approx. 300 – 400 g/m²**	**10 kg**	**10 litres**
2	SILIKAL® hardening powder	1 – 5 % related to item 1	See “Hardener dosages” table for quantities	100 – 500 g	

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SILIKAL® R 59 resin

Reactive, high-viscosity primer for metallic substrates

Characteristics of R 59 as delivered

Property	Measuring method	Approx. value
Viscosity		800 – 900 mPas
Density D_4^{20}	EN ISO 2811-2	0.99 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % pbw. hardening powder)	10 – 12 min	
Application temperature	0 °C to +30 °C	

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life (material temperature) approx. min	Hardening time (substrate temperature) approx. min
+0 °C	5.0	14 – 16	50 – 60
+10 °C	4.0	12 – 14	45 – 55
+20 °C	2.0	10 – 12	35 – 45
+30 °C	1.0	8 – 10	30 – 40

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

Equipment cleaning

The equipment can be cleaned with ethyl acetate or SILIKAL® MMA cleaner immediately after use.

Safety advice

SILIKAL® R 59 resin is highly flammable as delivered. Please refer to the current safety data sheet for information on how to handle the material safely.

CE

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10[1)]
R 59 - 001
DIN EN 13813:2003-01
Synthetic resin screed/coating for use in buildings.
EN 13813 SR-AR1-B1.5-IR4
(structures according to Technical Information).

Reaction to fire	E_{fl}
Release of corrosive substances	SR
Water permeability	NPD [2)]
Wear resistance	AR 1 [3)]
Bond strength	B 1.5
Impact resistance	IR 4
Sound insulation	NPD [2)]
Sound absorption	NPD [2)]
Thermal resistance	NPD [2)]
Chemical resistance	NPD [2)]

CE-labelling

DIN EN 13813 "Screed material and floor screeds – Screed material – Properties and requirements" (Jan. 2003) specifies requirements for screed material that is used for floor constructions in interiors. Plastic coatings and sealers are also covered by this standard. Products that conform to the above standard are to be identified with the CE mark.

[1)] The last two digits of the year in which the CE mark was applied
[2)] NPD = No performance determined
[3)] Refers to the smooth, non-sprinkled coating

Other applicable documents	Data sheet
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	AVH
The substrate	DUG
Information on safety and protection	SUS
Storage and transport	LUT

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SILIKAL® RU 380 resin

Reactive medium-viscosity primer for absorbent and non-absorbent substrates/thin coatings

Properties

- Primer with very good adhesion on absorbent (concrete, cement screed) and non-absorbent substrates (tiles and metals)
- Rapid curing even at low temperatures
- Resin for building up a thin coating

Areas of application

SILIKAL® RU 380 resin is a medium-viscosity, solvent-free 2-component methacrylate resin system with very good adhesion on metals such as untreated steel, stainless steel (V2A), aluminium and galvanized sheet metal and other non-absorbent substrates. Curing and adhesion tests will generally have to be carried out.

Advice on application

Once the substrate has been inspected, it normally needs to be pre-treated. The surfaces must be dry, firm and load-bearing and also free of dust, oil and grease and other substances which could act as a separating layer. Steel substrates must be derusted and prepared to SA 2½ in accordance with DIN 55929. Non-ferrous metals must be cleaned and prepared by sanding down or blasting.

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

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

The material must be applied as soon as the hardening powder has finished dissolving in the resin components. The mixing time is about 2 minutes.

Before any further finishing with subsequent MMA systems, the SILIKAL® RU 380 primer resin must be completely cured.

Processing is performed using a short-pile solvent-resistant paint roller. If applying SILIKAL® RU 380 resin as a thin coating, we recommend using short-pile plush mohair rollers.

Special advice:

SILIKAL® RU 380 resin reaches it final physical properties in terms of compressive strength, final adhesion etc. after a post-reaction period which may last several hours.

1. Priming

(Use in systems A – D)

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 380 resin	100 %		10 kg	10 litres
	Total:	**100 %**	**Average consumption: approx. 300 – 400 g/m²**	**10 kg**	**10 litres**
2	SILIKAL® hardening powder	1.0 – 3 % related to item 1	See “Hardener dosages” table for quantities	100 – 300 g	

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2. Thin coating

(Use in system A)

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® RU 380 resin	65.0 %		6.5 kg	6.5 Ltr.
2	SILIKAL® Filler QM	30.0 %		3.0 kg	approx. 0.8 Ltr.
3	SILIKAL® Pigment	5.0 %		0.5 kg	
	Total:	**100 %**	**Average consumption: approx. 500 – 600 g/m²**	**approx. 9.8 kg**	**approx. 7.3 Ltr.**
4	SILIKAL® hardening powder	1.0 – 3 % related to item 1	See “Hardener dosages” table for quantities	65 – 195 g	

The thin coating can be sprinkled with coloured flakes, natural sand or coloured sand while still fresh.

After the SILIKAL® RU 380 resin has cured, a suitable sealant can be applied.

If using as a one-colour top coat, we recommend sealing with transparent SILIKAL® R 82 resin to make the thin coating easier to clean and improve its mechanical stability (scratch resistance).

Characteristics of RU 380 as delivered

Property	Measuring method	Approx. value
Viscosity		180 – 250 mPa · s
Density D_4^{20}	EN ISO 2811-2	0.99 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 1.5 % pbw. hardening powder)	12 – 14 min.	
Application temperature	0 °C to +30 °C	

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
+0 °C	3.0	32 – 36	50 – 60
+10 °C	2.0	18 – 22	45 – 55
+20 °C	1.5	12 – 14	35 – 45
+30 °C	1.0	10 – 12	30 – 40

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **“SILIKAL® hardening powder”**.

Equipment cleaning

The equipment can be cleaned with ethyl acetate or SILIKAL® MMA cleaner immediately after use.

Safety advice

SILIKAL® RU 380 resin is highly flammable as delivered. Please refer to the current safety data sheet for information on how to handle the material safely.

CE-labelling

DIN EN 13 813 “Screed material and floor screeds - Screed material - Properties and requirements” (Jan. 2003) specifies requirements for screed material that is used for floor constructions in interiors.

Plastic coatings and sealers are also covered by this standard. Products that conform to the above standard are to be identified with the CE mark.

CE

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10[1]
RU 380 - 001
DIN EN 13813:2003-01
Synthetic resin screed/coating for use in buildings.
EN 13813 SR-AR1-B1.5-IR4
(structures according to Technical Information).

Reaction to fire:	E_{fl}
Release of corrosive substances (Synthetic Resin Screed):	SR
Water permeability:	NPD [2]
Wear resistance (Abrasion Resistance):	AR 1 [3]
Bond strength:	B 1.5
Impact resistance:	IR 4
Sound insulation:	NPD [2]
Sound absorption:	NPD [2]
Thermal resistance:	NPD [2]
Chemical resistance:	NPD [2]

[1] Last two digits of the year in which the ce marking was affixed.
[2] NPD = No performance determined.
[3] Refers to a smooth surface without broadcasting.

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SILIKAL® RU 320 resin pigmented/thix

Highly flexible reactive resin for waterproofings

Product description

SILIKAL® RU 320 resin pigmented, is a polyurethane modified, self levelling methacrylate resin system that is suitable for creating watertight membranes on a wide variety of substrates. The formulation SILIKAL® RU 320 resin thix, can also be used for coating on rising or very steeply inclined surfaces.

Properties

- Highly flexible
- Good crack bridging
- Very easy to apply
- Application even at low temperatures
- Very good intercoat adhesion
- Quickly treatable

Application

SILIKAL® RU 320 resin pigmented/thix, is a urethane modified medium viscosity or thixotropic membrane resin based on an acrylic resin. SILIKAL® RU 320 resin pigmented/thix, is supplied ready-filled and pigmented. The addition of the SILIKAL® hardening powder triggers curing.

Properly cured SILIKAL® RU 320 resin pigmented/thix, creates a highly flexible, crack-bridging membrane layer that retains its flexibility even at very low temperatures.

SILIKAL® RU 320 resin pigmented/thix, can be applied in the temperature range from 0 °C to +30 °C. Addition of the accelerator (SILIKAL® Additive ZA) also enables application in the range from 0 °C to -10 °C.

Preparation of the substrate.

The surface to be coated must be solid, dry, free of dust, grease and oil, as well as firm. Cementitious surfaces may be prepared e.g. by shot-peening. Before applying the SILIKAL® RU 320 resin pigmented/thix, always prime the substrate appropriately, possibly including scattering loosely with silica sand of grain size 0.7 – 1.2 mm. Observe the relevant product data sheets on the processing of the primer.

Before application, stir the container in which the product is supplied thoroughly to distribute the paraffin evenly and ensure that the material hardens reliably. The amount of Silikal hardening powder to be added depends on the temperature. Please refer to the table **“Hardener dosages”** for the relevant values.

At temperatures below 0 °C, also incorporate SILIKAL® Additive ZA. Observe the technical data sheet **“SILIKAL® Additive ZA”**.

Guideline recipe and standard batch

Item	Component	Guideline recipe (% by weight)	Comments	Batch size	
1	SILIKAL® RU 320 resin pigmented/thix	100 %		10 kg	
	Total:	**100 %**	**Average consumption: 1.3 kg/m² per mm thickness**	**10 kg**	
2	SILIKAL® hardening powder	1 – 6 %, related to item 1	See “Hardener dosages” table for quantities	100 – 600 g	

Characteristics of RU 320 pigmented/thix, as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C (RU 320 pigmented)	DIN 53 015	2,000 – 3,000 mPa · s
Viscosity at +20 °C (RU 320 thix)		Pasty
Density D_4^{20} (RU 320 pigmented)	DIN 51 757	1.13 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % pbw. hardening powder)	Approx. 15 min.	
Processing temperature (substrate temperature)	0 °C to +30 °C -10 °C to 0 °C with SILIKAL® Additive ZA	

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Characteristics of RU 320 pigmented/thix, in the hardened state

Property	Measuring method	Approx. value
Adhesive pull strength	EN ISO 527	>2 N/mm²
Tensile stress at break	EN ISO 527	3.3 N/mm²
Crack bridging		1.55 mm
Elongation at break	EN ISO 527	157 %

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min	Hardening time approx. min
0 °C	6.0	20	80
+10 °C	4.0	15	60
+20 °C	2.0	15	60
+30 °C	1.0	8	40

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **SILIKAL® hardening powder**".

Safety advice

Wear suitable protective clothing (gloves and goggles) when applying. Avoid contact with the eyes and skin.
For further information, please refer to the safety data sheet.

Delivery form

- 10 kg bucket
- 20 kg bucket

Shelf life

6 months if stored in the unopened original container in a cool (< 25 °C), dry and frost-free location.
The optimal storage temperature is +15 °C to +20 °C.
Do not expose to direct sunlight!

Labelling

Giscode: RMA 10

Resin: Xi irritant

Disposal

Fully hardened material can be disposed of as domestic refuse.

Recycle completely empty containers.

Dispose of liquid material as waste paint that contains solvents or other dangerous substances (EWC 080111).

Other applicable documents	Data sheet
SILIKAL® Additive ZA	SILIKAL® Additive ZA
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

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SILIKAL® RU 321 resin pigmented

Highly flexible reactive resin for waterproofings

Product description

SILIKAL® RU 321 resin pigmented is a formulated, MMA based resin which is suitable for waterproofing purposes in exterior areas.

Properties

- Highly flexible
- Good crack bridging properties
- Easy to apply
- Extended application temperature
- Good interlayer adhesion
- Fast curing

Application

SILIKAL® RU 321 resin pigmented is a solvent free, PU modified acrylic resin delivered as a ready-to-use product. It is supplied pigmented and pre-filled. The curing process is started by adding an appropriate amount of SILIKAL® hardening powder. The cured SILIKAL® RU 321 resin pigmented represents a highly flexible membrane layer which keeps its flexibility down to very low temperatures. SILIKAL® RU 321 resin pigmented can be applied within the temperature range of 0 °C up to +35 °C. The application is done by using a solvent resistant paint roller or by trowel.

The layer thickness of a single layer is about 1 mm. We recommend an application as a double layer system in order to avoid imperfections.

Preparation of the substrate

The surface to be coated must be solid, dry, free of dust, grease and oil, as well as firm. Cementitious surfaces may be prepared e.g. by shot-peening. Before applying the SILIKAL® RU 321 resin pigmented on a cementitious substrate, always prime the substrate appropriately, possibly including scattering loosely with silica sand of grain size 0.7 – 1.2 mm. Please refer to the relevant product data sheets on the processing of the primer.

Before application, thoroughly stir the container in which the product is supplied to distribute the paraffin evenly and ensure that the material hardens surely. The amount of SILIKAL® hardening powder to be added depends on temperature.

Please refer to the table **“Hardener dosages”** for the relevant values.

At temperatures below 0 °C, also incorporate SILIKAL® Additive ZA. Observe the technical data sheet **“SILIKAL® Additive ZA”.**

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch	
1	SILIKAL® RU 321 resin pigmented	100 %		10 kg	
	Total:	**100 %**	**Average consumption: 1.6 kg/m² per mm thickness**	**10 kg**	
2	SILIKAL® hardening powder	1 – 6 %, related to item 1	See “Hardener dosages” table for quantities	100 – 600 g	

Characteristics of RU 321 pigmented as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	4.000 – 5.000 mPa·s
Density D_4^{20}	DIN 51 757	1.65 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 pbw hardening powder)	Approx. 15 min.	
Application temperature (substrate)	0 °C to +35 °C -10 °C to 0 °C with SILIKAL® Additive ZA	

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Characteristics of RU 321 pigmented in the hardened state

Property	Measuring method	Approx. value
Pull-off strength (concrete, primed)	EN ISO 527	>1.5 N/mm²
Tensile strength	EN ISO 527	2 N/mm²
Elongation at break	EN ISO 527	200 %

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
0 °C	6.0	20	80
+10 °C	4.0	15	60
+20 °C	2.0	15	60
+30 °C	1.0	8	40
+35 °C	1.0	7	35

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

Safety advice

Wear suitable protective clothing (gloves and goggles) when applying. Avoid contact with the eyes and skin.
For further information, please refer to the safety data sheet.

Delivery form

- 10 kg bucket
- 20 kg bucket

Shelf life

Six months if stored in the unopened original container in a cool (< +25 °C), dry and frost-free location.
The optimal storage temperature is +15 °C to +20 °C.
Do not expose to direct sunlight!

Labelling

Giscode: RMA 10

CLP: GHS 02, GHS 07

Disposal

Fully hardened material can be disposed of as domestic refuse.

Recycle completely empty containers. Dispose of liquid material as waste paint that contains solvents or other dangerous substances (EWC 080111).

Other applicable documents	Data sheet
SILIKAL® Additive ZA	SILIKAL® Additive ZA
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	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

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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 self-levelling coatings subject to extreme stresses, predominantly outdoors or for cold stores. Coatings made from SILIKAL® RV 368 resin are durably elastic and able to crack bridging.

SILIKAL® RV 368 resin is characterized 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 remains 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 underneath normal flooring systems of SILIKAL® R 61, SILIKAL® R 62 or SILIKAL® RV 368 resin in order to improve impact resistance and crack bridging (tight to liquids).

Application

SILIKAL® RV 368 resin is used as a binder in manufacturing various coating types and recipes. Indoors it can be coated on the following substrates: concrete, screed, ceramic tiles, 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 to a minimum thickness of 1 mm. Mixtures in a ratio of 2 : 1 to 3 : 1 with SILIKAL® Filler QM have proven to be most suitable. Membrane coats must not be sanded over their full area before being covered with SILIKAL® R 61, SILIKAL® R 62 or SILIKAL® RV 368 resin self-levelling coatings. Membrane coats are advisable e. g. on blasted sheet steel, critical substrates or if there are particular mechanical stresses.

Main coat

For the main coat, a differentiation must be made between two 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 sand sprinkling of SILIKAL® Filler QS 0.7 – 1.2 mm, FS or FM 0.7 – 1.2 mm is absolutely essential, as this ensures the surface straining point stress. Dried basalt chippings or coarse quartz sand is also suitable for sprinkling over areas subject to traffic.

1. Scratch slurry

(Use in systems B, C, D)

Guideline recipe and batch quantities

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 % related to item 1	See “Hardener dosages” table for quantities	135 – 810 g	

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2. Self-levelling coating 2 – 4 mm

(Use in system D or as scratch slurry)

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® RV 368 resin	35 %		14 kg	14 litres
2*	SILIKAL® Filler SV	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 % related to item 1	See “Hardener dosages” table for quantities	140 – 840 g	

*** SILIKAL® Filler SL (contains no quartz powder) can be used instead of SILIKAL® Filler SV (line 2).**

For thin outdoor applications of 2 – 3 mm thickness please use 50/50 resin/filler mixtures with full quartz broadcast. Silikal Filler SV is recommended.

3. Self-levelling coating 4 – 7 mm

(Use in system D)

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 30 litre bucket	
1	SILIKAL® RV 368 resin	30 %		16 kg	16 litres
2	SILIKAL® Filler QM	20 %		10 kg	approx. 11 litres
3	SILIKAL® Filler SL	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 % related 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 overcoat. If a hard top coat 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.

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SILIKAL® RV 368 resin

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

Protecting floors and buildings.

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 cup	ISO 2431	135 – 165 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 % pbw. hardening powder)	approx. 15 min.	
Application temperature	+5 °C to +30 °C	

Characteristics of the self-levelling coating 4 – 7 mm

Property	Measuring method	Approx. value
Compressive strength	DIN 1164	25 N/mm²
Tensile strength in bending	DIN 1164	15 N/mm²
Specific weight		1.7 g/cm³

Hardener dosages

Temperature	Hardening powder % pbw. *	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 hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

CE

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10[1)]
RV 368 - 001
EN 13813 SR-AR1-B1,5-IR4
Synthetic resins for internal uses
(Application in accordance with the newest technical information)

Reaction to fire:	E_{fl}
Release of corrosive substances (Synthetic Resin Screed):	SR
Water permeability:	NPD [2)]
Wear resistance (Abrasion Resistance):	AR 1 [3)]
Bond strength:	B 1,5
Impact resistance:	IR 4
Sound insulation:	NPD [2)]
Sound absorption:	NPD [2)]
Thermal resistance:	NPD [2)]
Chemical resistance:	NPD [2)]

CE-labelling

[1)] Last two digits of the year in which the ce marking was affixed.
[2)] NPD = No performance determined.
[3)] Refers to a smooth surface without broadcasting.

Other applicable documents	Data sheet
SILIKAL® Additive ZA	SILIKAL® Additive ZA
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	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

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SILIKAL® resin RF 6200 / base

Reactive sealing resin with slightly elasticised formulation

Application

SILIKAL® resin RF 6200 is a methacrylate resin with medium-viscosity formulation that is excellently suited to sealing sprinkled coatings both indoors and outdoors. SILIKAL® resin RF 6200 is available for such tasks both in a factory-pigmented (SILIKAL® resin RF 6200 pigmented) and a prefilled but unpigmented base (SILIKAL® resin RF 6200 base) for pigmenting on site.

Rollable sealer (factory-pigmented)

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 20 litre bucket	
1	SILIKAL® resin RF 6200 pigmented	100 %		12 kg	10 litres
	Total:	**100 %**	**Average consumption: 0.6 – 1.1 kg/m²**	**12 kg**	**10 litres**
2	SILIKAL® hardening powder	1 – 6 % related to item 1	See “Hardener dosages” table for quantities	130 – 780 g	

SILIKAL® resin RF 6200 must generally be applied on sanded-down substrates at rates of at least 600 g/m² in the first sealing coat and, if applicable, at least 500 g/m² in in a second, optional seal.

For use on sloping surfaces or for vertical application, SILIKAL® resin RF 6200 can be thixotroped. A visually appealing, smooth surface is then no longer guaranteed.

The container must be stirred intensively before removing partial quantities.

Rollable sealer with SILIKAL RF 6200 base

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments
1	SILIKAL® resin RF 6200 Base	92 – 95 %	
2	Pigment paste*	5 – 8 %	
	Total:	**100 %**	**Average consumption: 0.6 – 1.1 kg/m²**
3	SILIKAL® hardening powder	1 – 6 % related to item 1	See “Hardener dosages” table for quantities

* The pigment paste must be suitable for pigmenting MMA resins. This can be established in suitable preliminary tests.

SILIKAL® resin RF 6200 must generally be applied on sanded-down substrates at rates of at least 600 g/m² in the first sealing coat and, if applicable, at least 500 g/m² in in a second, optional seal.

For use on sloping surfaces or for vertical application, SILIKAL® resin RF 6200 can be thixotroped. A visually appealing, smooth surface is then no longer guaranteed.

The container must be stirred intensively before removing partial quantities.

Characteristics of RF 6200 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 019	350 – 550 mPa · s
Flow time at +20 °C, 6 mm	DIN EN ISO 2431	45 – 70 sec.
Density D_4^{20}	DIN EN ISO 2811	1.2 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (100 g, 2 % pbw. hardening powder)	approx. 15 min.	
Application temperature	0 °C to +30 °C	

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Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
0 °C	6.0	20	50
+10 °C	4.0	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 hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

Delivery form and shades

- 5 kg, 10 kg, 25 kg hobbock RF 6200 pigmented
- 5 kg, 10 kg, 25 kg hobbock RF 6200 base
  That product is not pigmented, within this delivery form. The shade could be identified due to the filler.

Shelf life

Six months if stored in the unopened original container in a cool and dry location.
The optimal storage temperature is +15 °C to +20 °C.

Equipment cleaning

The equipment can be cleaned with ethyl acetate or SILIKAL® MMA cleaner immediately after use.

Safety advice

SILIKAL® resin RF 6200 base is highly flammable as delivered. Please refer to the current safety data sheet for information on how to handle the material safely.

CE-labelling

DIN EN 13 813 "Screed material and floor screeds - Screed material - Properties and requirements" (Jan. 2003) specifies requirements for screed material that is used for floor constructions in interiors.
Plastic coatings and sealers are also covered by this standard. Products that conform to the above standard are to be identified with the CE mark.

[1] Last two digits of the year in which the ce marking was affixed.
[2] NPD = No performance determined.
[3] Refers to a smooth surface without broadcasting.

CE

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10[1]
RF 6200 - 001
DIN EN 13813:2003-01
Synthetic resins for internal uses.
EN 13813 SR-AR1-B1.5-IR4
(Application in accordance with the newest technical information).

Reaction to fire:	E_{fl}
Release of corrosive substances	SR
Water permeability:	NPD [2]
Wear resistance	AR 1 [3]
Bond strength:	B 1.5
Impact resistance:	IR 4
Sound insulation:	NPD [2]
Sound absorption:	NPD [2]
Thermal resistance:	NPD [2]
Chemical resistance:	NPD [2]

Other applicable documents	Data sheet
SILIKAL® Additive ZA	SILIKAL® Additive ZA
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	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

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SILIKAL® R 82 resin

Reactive, low-viscosity elasticized top coat resin for wet areas

SILIKAL® R 82 resin is a reactive, solvent-free, low-viscosity, virtually non-yellowing 2-component methacrylic resin offering good resistance to water interaction. It serves primarily as a slightly elasticized and colourless top coat on sprinkled coatings in wet areas.

The low viscosity enhances the penetrative capacity of the resin in sand-coated surfaces.

Hot water stress is limited to +60 °C. The temperature stress may be increased to +80 °C for short periods, e. g. to allow cleaning, provided that the coating is not thoroughly warmed through to the substrate.

Application

SILIKAL® R 82 resin is used primarily as a colourless top coat for decorative SILIKAL® Coloured Quartz surfaces.

It is possible to apply two coats to the thickness envisaged.

Advice on application

Once moderately sized batches (5 – 10 kg) have been mixed with the necessary quantity of hardener as laid down in the **"Hardener dosages"** table, the resin is immediately poured onto the surface and applied crosswise, preferably by means of a paint roller. Although it is possible to spread it roughly with a rubber blade first, the dwell time of the still liquid resin until final levelling on a coloured flake surface must not be too long, as this may partly dissolve and leave colour tracks behind. It is essential that no puddles form!

To ensure the best possible properties, the minimum and maximum coating thickness must be observed. Material consumption for smooth coatings is approx. 400 g/m² per application and on areas sprinkled with SILIKAL® Filler QS / FS / FM 0.7 – 1.2 mm approx. 500 g/m². If the coat thickness is exceeded (more than 800 g/m²), the resin will tend to flake and yellow. If the thickness is too low, excessively high monomer loss may occur, leading to insufficient hardness or lower water resistance.

Under braking strains the thermoplastic character of the surface may lead to tyre marks which in many cases can be removed again using suitable cleaning agents. It makes sense for the user to protect the surface against damage through careful use and care. Often it would be advisable to ensure that fork-lift trucks are driven appropriately, black tyres are exchanged for white ones or a surface care agent (e. g. SILIKAL® Protect) is used.

Pigmenting

If pigmentation is nevertheless essential, 10 % SILIKAL® pigment powder is usually added. To avoid lumps in the pigment, it must first be dispersed with the same quantity of resin by means of a dissolver to eliminate lumps. After the dispersion process the residual quantity of resin is added to the new pigment paste until the total content of the mix is again 10 %. You must make particularly sure that pigments which are not made by SILIKAL® are properly tested for their compatibility and storage stability.

1. Colourless top coat

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 82 resin	100 %		10 kg	10 litres
	Total:	**100 %**	**Average consumption: 400 – 500 g/m²**	**10 kg**	**10 litres**
2	SILIKAL® hardening powder	1 – 3 % related to item 1	See "Hardener dosages" table for quantities	100 – 300 g	

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2. Pigmented top coat

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® R 82 resin	90 %		9 kg	9 litres
2	SILIKAL® pigment powder	10 %		1 kg	
	Total:	**100 %**	**Average consumption: 400 – 500 g/m²**	**10 kg**	**approx. 9.5 litres**
3	SILIKAL® hardening powder	1 – 3 % related to item 1	See "Hardener dosages" table for quantities	90 – 270 g	

Characteristics of R 82 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C	DIN 53 015	approx. 180 mPa · s
Flow time at +20 °C, 4 mm cup	DIN 53 211	30 – 40 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 % pbw. hardening powder)	approx. 12 min.	
Application temperature	5 °C to +30 °C	

Characteristics of R 82 in the hardened state

Property	Measuring method	Approx. value
Density	DIN 53 479	1.14 g/cm³
Ultimate elongation	DIN 53 455	2.7 %
Shore-D	DIN 53 505	75 units
Water absorption, 4 days	DIN 53 495	125 mg (50 · 50 · 4 mm)
Water vapour permeability	DIN 53 122	$1.05 \cdot 10^{-11}$ g/cm · h · Pa

Hardener dosages

Temperature	Hardening powder % pbw. *	Pot life approx. min.	Hardening time approx. min.
+5 °C	3.0	20	45
+10 °C	3.0	18	40
+20 °C	2.0	12	30
+30 °C	1.0	8	20

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® hardening powder"**.

Other applicable documents	Data sheet
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	AVH
Chemical resistance	CBK
Information on safety and protection	SUS
Storage and transport	LUT
General cleaning advice	ARH

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SILIKAL® HK 21 coving paste

Reactive methacrylate coving paste

SILIKAL® HK 21 coving paste is a formulated ready-to-use methacrylic-based paste for the easy manufacture of covings.

Application

SILIKAL® HK 21 coving paste is outstandingly suitable for the manufacture of indoor covings in both dry and wet areas when applied with SILIKAL® Filler FM, FS or SILIKAL® Filler QS 0.7 – 1.2 mm. The hardening time of the almost non-yellowing coving paste is about 40 minutes at +20 °C. It can be used at temperatures ranging from 0 °C to +35 °C, enabling application to progress rapidly. For coating thickness of more than 10 mm, a first half thick cove must be installed for curing as to avoid any overheating. The final coving to follow as soon as the first layer has cooled down.

For covings thicker than 20 mm and for all outdoor covings SILIKAL® R17-thix mortar must be used.

Advice on application

The mixing ratio is 15 kg of SILIKAL® Filler FM, FS or SILIKAL® Filler QS 0.7 – 1.2 mm and 5 kg of SILIKAL® HK 21 coving paste. The quantity of filler can be varied from 12 – 18 kg according to the material and ambient temperature in order to ensure individual application or stability.

This batch is sufficient for approx. 8 – 10 m of coving at a height of 10 cm.

Under no circumstances should other untested additives be added to the mixture.

Mixing the coving paste

The corresponding quantity of SILIKAL® Filler FM, FS or SILIKAL® Filler QS 0.7 – 1.2 mm as well as SILIKAL® Hardening Powder is added to the SILIKAL® HK 21 coving paste as indicated in the **“Hardener dosages”** table, all mixed together intensively for about one minute using a high-speed propeller agitator. You must remember that the hardening powder has to be mixed in with the coving paste first before the filler is added.

The pot life at normal temperatures is about 15 minutes, the hardening time about 40 minutes. The values indicated will vary according to the ambient temperature.

Guideline recipe and batch quantities

Item	Component	Guideline recipe (% by weight)	Comments	Batch for 10 litre bucket	
1	SILIKAL® HK 21 coving paste	25 %		3 kg	3 litres
2	SILIKAL® Filler FS, FM or QS	75 %		9 kg	approx. 6 litres
	Total:	**100 %**	**Average consumption: 1.85 kg per litre Coving volume**	**12 kg**	**approx. 6.5 litres**
3	SILIKAL® Hardening Powder	1.0 – 3.5 % related to item 1	See “Hardener dosages” table for quantities	30 – 105 g	

Characteristics of HK 21 as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C		Pasty
Flow time at +20 °C, ISO 4 cup	DIN 53 244	N/A
Density D_4^{20}	DIN 51 757	1.02 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C (1.5 % pbw. hardening powder)		approx. 15 min.
Application temperature		0 °C to +35 °C

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Characteristics of HK 21 in the hardened state (1 : 3 filled)

Property	Measuring method	Approx. value
Density	DIN 53 479	1.85 g/cm³
Compressive strength	DIN 1164	40.0 N/mm²
Tensile strength in bending	DIN 1164	17.0 N/mm²
Modulus of elasticity	DIN 53 457	2100 N/mm²
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 % pbw. *	Pot life approx. min.	Hardening time approx. min.
0 °C	3.5	20	60
+10 °C	2.5	17	45
+20 °C	1.5	15	40
+30 °C	1.0	12	30

* The quantity of hardening powder is always related to the quantity of resin.
For further information, please refer to the separate product information sheet **"SILIKAL® Hardening Powder"**.

Other applicable documents	Data sheet
SILIKAL® Hardening Powder	SILIKAL® Hardening Powder
General processing information	AVH
The substrate	DUG
Fillers and pigments	FUP
Information on safety and protection	SUS
Storage and transport	LUT

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SILIKAL® Additive ZA

Low-temperature accelerator

SILIKAL® Additive ZA supports the low-temperature hardening of methacrylic-based Silikal reactive resins in combination with dibenzyl peroxide as hardener in the temperature range from +5 °C to -25 °C.

SILIKAL® Additive ZA is a thin, brownish liquid which is stirred into the relevant methacrylic resin together with the fillers and/or pigments immediately before the coating material is applied. Only then is the hardening powder added. The added accelerator ensures better through-hardening at temperatures below +5 °C. The effect is limited to -25 °C with the simultaneous use of the greatest possible quantity of hardening powder. As a rule of thumb, the quantity to add is 1 % per -10 °C, i. e. at -25 °C the quantity is 2.5 – 3 %, and at -5 °C about 0.5 %, in relation to pure resin. These include SILIKAL® R 52, R 62, RU 320 or RV 368 resin. Other resin types on request.

SILIKAL® Additive ZA must never be used in areas above +10 °C, as this can lead to an overreaction with increased quantities of residual monomers. This will restrict the mechanical properties. Application at low temperatures will lead to very little reduction in mechanical values since sufficient heat dissipation into the surroundings is ensured. All resins and fillers must be cooled down to the low ambient temperatures in good time, as otherwise the pot life will be greatly reduced. Colourless resin types can be expected to show significant yellowing. It is therefore recommended that they are used primarily in filled and pigmented systems. If the coating is to be designed specifically for use at low temperatures, the resin types must also be suitable for that purpose, so we recommend that the highly elastic types such as SILIKAL® RV 368 be used with SILIKAL® R 62 as a top coat.

SILIKAL® Additive ZA is subject to strict safety regulations governing transport, storage and handling. Please follow the relevant instructions in the safety data sheets.

ATTENTION:

SILIKAL® Additive ZA must never come into contact with the hardening powder (see product data sheet), as otherwise an uncontrollable explosion might occur. Both substances must be stirred separately into the mass (stir before adding!).

Additive quantities, based on SILIKAL® RV 368 resin

Temperature	% pbw. Additive ZA	% pbw. Hardening powder
+5 °C to -5 °C	0.5	6
-5 °C to -10 °C	1.0	6
-10 °C to -15 °C	1.5	6
-15 °C to -20 °C	2.0	6
-20 °C to -25 °C	2.5 – 3.0	6

Other applicable documents	Data sheet
SILIKAL® hardening powder	SILIKAL® hardening powder
General processing information	AVH
Information on safety and protection	SUS
Storage and transport	LUT

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The manufacture of polymers 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 initiator 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 (pbw.), related to the proportion of resin.

More hardening powder is advisable for

1. thinner coating thickness
2. higher degree of filling

Less hardening powder is advisable for

1. coating over thicker old methacrylic coatings
2. sealing of self-levelling, smooth methacrylic coatings not sprinkled with sand or colour flakes

However, you must not dose less than the quantity 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 dosed 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

Example:

Batch quantity of SILIKAL® R 51 resin: 1.0 kg

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

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. The stirring time will depend on the nature and the condition of the mixing equipment used and on the temperature of the material.

Special safety advice

BPO hardening powder must never come into contact with Additive ZA accelerator (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, circumstances which cannot always be foreseen in advance (e. g. poor ventilation, colder substrate, thinner coats, or a combination of such circumstances) mean that there is a danger of slight (possibly only localized) 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 table.

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SILIKAL® TEX 1000

Polyester-reinforced fabric

Product description

SILIKAL® TEX 1000 is a powerful polyester fabric that is characterised by its high strength and at the same time its good stretching properties.

Application

SILIKAL® TEX 1000 can be used as a reinforcement fabric in coating or sealing work with Silikal MMA products.

Advice on application

To prevent delamination, bubbles or hardening problems for the MMA material, it is particularly important that the fabric is applied wet-in-wet. The goal of the wet-in-wet method is to completely saturate the fabric with material. This is guaranteed if approx. 1.2 to 1.5 kg/m² of the membrane resin is applied in advance. The resin is applied in advance evenly using the roller on a surface at least 5 cm wider than the roll width used. The fabric is then immediately rolled into the fresh (unhardened) material without causing bubbles. If the fabric is completely saturated, in the final step, which is performed directly after rolling in, sufficient material (1.2 – 1.5 kg/m²) is rolled over this again. After complete hardening (1 – 2 hours) additional coating measures can be performed.

Technical data

Weight / m²	100 g
Failure load	79 kg
Tensile strength	7 kg
Elongation	64 %

Packaging:

1000 mm x 100 m roll
500 mm x 100 m roll
200 mm x 100 m roll

* Additional sizes upon request

Storage:

Store in a dry and clean place! Storage stability of at least 2 years

In addition, the respective product data sheets for the processed Silikal resins must be observed!

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Advice on application

for connection work with PMMA liquid plastic and fabric reinforcement

Provide tools and aids.

All substrates to be coated are to be cleaned and prepared according to the specifications in the technical bulletins.

The substrates must generally be clean, firm, dry, level and slightly roughened (see also Substrates table).

The edges of the surfaces to be coated are to be cleanly delimited with adhesive tape that can be removed again.

The fabric reinforcements are to be prepared at the correct lengths in advance.

The edges of the fabric reinforcements are to have a processing gap of approx. 2 cm on each side.

The fabric reinforcement must be cut into where necessary.
Make sure, however, that cut-in parts are reworked with an additional piece.

Apply the primer with a roller according to the specification in the corresponding technical bulletins.

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Advice on application

for connection work with PMMA liquid plastic and fabric reinforcement

Application of the 1st coat of SILIKAL® RU 320 thix resin, coat thickness approx. 1 mm.

Apply enough material so that the fabric subsequently inserted is optimally embedded.

The fabric must be fully worked into the 1st coat of SILIKAL® RU 320 thix resin. Air pockets must be avoided.

Application of the 2nd coat of SILIKAL® RU 320 thix resin, coat thickness approx. 1 mm.

Cut-in double-layer fabric is to be carefully incorporated with a sufficient quantity of SILIKAL® RU 320 thix resin.

The surface of the freshly applied membrane of SILIKAL® RU 320 thix resin can be evenly structured using a brush.

Completely applied connection with SILIKAL® RU 320 thix resin and fabric reinforcement.

Quartz sand can optionally be scattered onto the freshly applied surface as a bond for additional work.

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Substrates	Pretreatement/ comments	Primer for surface coatings	Primer for seal connections
Dry cementitious substrates, residual moisture ≤ 4 %	Grinding with diamond cup wheel, bush-hammering, shot-peening, sandblasting Caution with polymer-modified substrates	SILIKAL® R 52 resin	SILIKAL® R 52 resin
Cementitious substrates with increased moisture ≤ 6 %	Grinding with diamond cup wheel, bush-hammering, shotblasting, sandblasting Caution with polymer-modified substrates	SILIKAL® RE 56	SILIKAL® RE 56 SILIKAL® R 54 resin
Critical residual moisture and/or strong rising damp	Grinding with diamond cup wheel, bush-hammering, shotblasting, sandblasting Substrate must be absorbent	SILIKAL® Porfil RE 40 SILIKAL® RE 56	SILIKAL® RE 56
Contains oil and grease	Flame cleaning or chemical cleaning, all traces of oil and grease residues must be removed as otherwise adhesion cannot be achieved	SILIKAL® R 54 resin SILIKAL® RE 56	SILIKAL® R 54 resin SILIKAL® RU 380 resin
Raw and sanded wood, chipboards, hardboards	Grinding with diamond cup wheel, bush-hammering, shotblasting, sandblasting Caution in the event of embedded knots and resin Preliminary testing recommended	SILIKAL® RE 56 SILIKAL® RU 380 resin	SILIKAL® RE 56 SILIKAL® RU 380 resin
Hot-dip galvanised steel	Mechanical roughening (grinding), degreasing	SILIKAL® R 59 resin	SILIKAL® R 59 resin
Untreated steel	Rust removal on steel in accordance with standard grade of cleanliness Sa 2.5 as per DIN EN ISO 12944, degreasing, slight mechanical roughening (grinding)	SILIKAL® R 59 resin	SILIKAL® R 59 resin
Stainless steel V2A	Slight mechanical roughening (grinding), degreasing	SILIKAL® R 59 resin	SILIKAL® R 59 resin
Aluminium/copper	Slight mechanical roughening (grinding), degreasing	SILIKAL® R 59 resin SILIKAL® RU 320 resin (thix)	SILIKAL® R 59 resin SILIKAL® RU 320 resin (thix)
PVC	Slight mechanical roughening (grinding) Attention! PVC dissolves! => Note the PVC coat thickness		SILIKAL® R 52 resin SILIKAL® RU 320 resin (thix)

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Substrates	Pretreatement/ comments	Primer for surface coatings	Primer for seal connections
Epoxy resin (EP)	Mechanical roughening (grinding), hardening tests absolutely necessary as inhibition due to EP is possible Pull Off tests required	SILIKAL® RE 56	SILIKAL® RE 56
Acrylic (2C, BPO hardened)	Slight mechanical roughening (grinding)	SILIKAL® R 52 resin SILIKAL® RU 380 resin	SILIKAL® R 52 resin SILIKAL® RU 380 resin
Tiles, ceramic plates	Slight mechanical roughening (grinding), degreasing	SILIKAL® RU 380 resin	SILIKAL® RU 380 resin
Polyurethane (PU)	Slight mechanical roughening (grinding) Tensile bond tests required	SILIKAL® RE 56	SILIKAL® RE 56
Polymer bitumen membrane (SBS)	Scattered: removal of loose parts, clean and free of foreign constituents Not scattered: slight mechanical roughening		SILIKAL® R 52 resin SILIKAL® RU 320 resin (thix)
Polymer bitumen membrane (APP)	Scattered: removal of loose parts, clean and free of foreign constituents Not scattered: **not** suitable as substrate!		(SILIKAL® R 52 resin) SILIKAL® RU 320 resin (thix)
Mastic asphalt for indoor use	Mechanical roughening (grinding)	SILIKAL® RU 380 resin	SILIKAL® RU 380 resin

General notes:

In general, the prepared surfaces must be dry, clean, firm and free of foreign constituents.

If in doubt, always perform preliminary testing.

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Protecting floors and buildings.

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Reactive resins and polymer concrete for industrial floors and civil engineering projects

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