SILIKAL® RM 611 A / RM 611 B resin

SILIKAL® RM 611 A resin – methacrylic resin for cold spray road markings including accelerator
SILIKAL® RM 611 B resin – methacrylic resin for cold spray road markings without accelerator

Expect more from your floor.

SILIKAL® RM 611 A / RM 611 B resin is a high reactive, solvent free, very low viscous methacrylic resin for sprayable 2-component road markings with different mixing ratios, such as

1. **Airless spray 100 : 2 for 0.4 – 1 mm thickness**
2. **Airless spray 1 : 1 for 0.4 – 1 mm thickness**
3. **Airless spray 1-comp. (BPO drop-in) for 0.6 – 1 mm**

When manufacturing component A with fillers and pigment, an additional suitable accelerator can also be added in order to speed up the curing time (if too much is used the colour might turn yellowish after curing!). The appropriate hardener (benzoyl peroxide) is added to component B on site just before application.

Characteristics

SILIKAL® RM 611 A / RM 611 B resin is just the binder resin for different cold-plastic spray formulations. By varying fillers and pigments, final properties can be achieved which correspond to national requirements and regulations of road authorities. The recipe has to be individually adapted in particular with regard to skid resistance, light reflection, abrasion and whiteness. The curing procedure is a chemical reaction initiated by adding benzoyl peroxide as a hardener to the resin. Curing time depends on the amount of hardener and surface temperature. SILIKAL® RM 611 A / RM 611 B resin does not change its properties when it has been applied onto the road surface. It is also resistant to many traffic chemicals like salt, oil, water or fuel. Plasticiser should not be added if possible (dirt pick-up).

Characteristics of RM 611 A / RM 611 B as delivered

Property	Measuring method	Approx. value
Viscosity at +20 °C (ISO 4 mm cup)	DIN EN ISO 2431	60 – 90 sec.
Density D_4^{20}	EN ISO 2811-2	0.98 g/cm³
Flash point	DIN 51 755	+10 °C
Pot life at +20 °C 50 g comp. A resin + 50 g comp. B resin + 2 pbw. hardening powder	10 – 12 min.	
Curing time as per above quantities	20 – 30 min.	
Packing	180 kg steel drums or 900 kg IBC container	
Storage time	At least 6 months in original packing, below +25 °C	

Applications

SILIKAL® RM 611 A / RM 611 B resin is just the binder resin for cold-plastic spray formulations. The characteristics and properties of the ready to use paint are also determined by the type, quantity and particle size of the added pigments, fillers, accelerator/hardener, thixotropic agents and additives.

Formulations for sprayable cold-plastic paints are similar to normal extruded or hand-applied screed cold plastics. The main difference is that the formulation has to have a lower viscosity and higher reactivity. This results in an initial increase in the resin content. By sprinkling additional coarse aggregates like glass beads and/or white granules into the white fresh marking before hardening, the resin/filler ratio automatically increases to the normal amount. For this reason, it is important to ensure a good and stable thixotropy due to the lower viscosity of the sprayable cold-plastic paint.

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1. Airless spray 100:2 for 0.4–1 mm thickness

Guideline recipe and batch quantities (example)

Item	Component	Guideline recipe (% by weight)	Comments
1	SILIKAL® RM 611 A resin	18.3 %	Resin
2	SILIKAL® RM 611 B resin	18.3 %	Resin
3	Titanium dioxide rutile	13.0 %	Pigment
4	Millicarb OG	15.0 %	Powder filler
5	Cristobalite powder 3000	20.0 %	Powder filler
6	Silica powder 6400	15.0 %	Powder filler
7	Anti Terra 204	0.1 %	Thixotropic agent
8	Wacker HDK N20	0.2 %	Thixotropic agent
9	Bentone 27	0.1 %	Thixotropic agent
10	**Total:**	**100 %**	**Average consumption: approx. 1.5 kg/m² per mm thickness**
11	BPO hardening paste/40 %	2 %, in relation to item 10	Quantity consistent for all temperature ranges

BPO hardening paste will be automatically added by the spray machine in a ratio of approx. 100:2 (range 1–3 % pbw.). After spraying the paint in the required thickness, the non-skid aggregate/glass beads mixture must be sprinkled immediately into the wet film.

Consumption of spray paint: 0.8 kg/m² (0.6 mm paint + scattered material –> 1 mm).

The drop-on grip aggregate shall be a mixture of white aggregate, e.g. cristobalite with 0.5 or 0.8 mm grains and silanate glass beads of a similar grain. The consumption depends on the paint thickness and will be around 0.5 – 0.8 kg/m².

Suitable airless road marking machines are available on the market. These should work according to the principle of airless spraying.

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2. Airless spray 1:1 for 0.4–1 mm thickness

Guideline recipe and batch quantities (example)

Component A (with accelerator)

Item	Component	Guideline recipe (% by weight)	Comments
1	SILIKAL® RM 611 A resin	36.6 %	Resin
2	Titanium dioxide rutile	13.0 %	Pigment
3	Millicarb OG	15.0 %	Powder filler
4	Cristobalite powder 3000	20.0 %	Powder filler
5	Silica powder 6400	15.0 %	Powder filler
6	Anti Terra 204	0.1 %	Thixotropic agent
7	Wacker HDK N20	0.2 %	Thixotropic agent
8	Bentone 27	0.1 %	Thixotropic agent
9	**Total:**	**100 %**	**Average consumption: approx. 1.5 kg/m² per mm thickness**
10	Hardener	Not used	

Component B (for absorption of BPO hardener)

Item	Component	Guideline recipe (% by weight)	Comments
1	SILIKAL® RM 611 B resin	36.6 %	Resin
2	Titanium dioxide rutile	13.0 %	Pigment
3	Millicarb OG	15.0 %	Powder filler
4	Cristobalite powder 3000	20.0 %	Powder filler
5	Silica powder 6400	15.0 %	Powder filler
6	Anti Terra 204	0.1 %	Thixotropic agent
7	Wacker HDK N20	0.2 %	Thixotropic agent
8	Bentone 27	0.1 %	Thixotropic agent
9	**Total:**	**100 %**	**Average consumption: approx. 1.5 kg/m² per mm thickness**
10	Hardener paste BPO/50 %	2–6 %, in relation to item 9	Quantity consistent for all temperature ranges

Before filling the road marking machine, BPO hardening powder is added to component B at a quantity of approx. 4 % (in relation to the quantity of component B) (range 2 – 6 % pbw.). However, the quantity of component B mixed with hardening powder must be just enough for application on the same working day, as the mixture may jellify if it is left for a few days. Prevent the tank from warming up. Contamination of the two components during storage must be avoided at all costs. After spraying the paint in the required thickness, the non-skid aggregate/glass beads mixture must be sprinkled immediately into the wet film.

Consumption of spray paint: 0.9 kg/m² (0.6 mm paint + scattered material –> 1.0 mm).

The drop-on grip aggregate shall be a mixture of white aggregate, e.g. cristobalite with 0.5 or 0.8 mm grains and silanate glass beads of a similar grain. The consumption depends on the paint thickness and will be around 0.5 – 0.8 kg/m².

Suitable airless spray machines are available on the market. These should work according to the principle of airless spraying.

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3. 1-comp. spray application (hardener drop-in) for 0.4–0.8 mm

Guideline recipe and batch quantities (example)

Item	Component	Guideline recipe (% by weight)	Comments
1	SILIKAL® RM 611 A resin	40.6 %	Resin
2	Titanium dioxide rutile	14.0 %	Pigment
3	Millicarb OG	15.0 %	Powder filler
4	Cristobalite powder 3000	20.0 %	Powder filler
5	Silica powder 6400	10.0 %	Powder filler
6	Anti Terra 204	0.1 %	Thixotropic agent
7	Wacker HDK N20	0.2 %	Thixotropic agent
8	Bentone 27	0.1 %	Thixotropic agent
9	**Total:**	**100 %**	
10	Hardener	See following text	

The BPO hardening powder must be sprinkled immediately together with the mix of anti-skid aggregates into the fresh film until full saturation. The content of BPO powder in the aggregate mix is approx. 3 % by weight (as previously described). There are also BPO-coated glass beads or anti-skid aggregates from different manufacturers on the market, which are preferable in order to prevent dust formation. In order to provide reliable curing, the thickness of the paint must not exceed 0.5 mm, otherwise the anti-skid aggregate will not be able to sink down to the bottom of the film. It must also be ensured when setting the viscosity and thixotropy that the aggregate is able to sink in completely.

Consumption: 0.7 kg/m² (0.5 mm paint + anti-skid aggregate –> 1.0 mm).

Hardener (benzoyl peroxide)

There are 2 types of BPO available: For all recipes used for application with the component B mixture, we always recommend using powder hardener, such as Lucidol CH-50.

For automatic hardener dosage 100 : 2 in the road marking machine, liquid hardening pastes (e.g. CADOX 40E) are preferable. Hardening pastes often contain water and/or emulsifying agents, which can have a negative effect on the thixotropy and curing. For this reason, only use the minimum quantities. Component B with premixed hardener is only stable for the day of application (perform storage tests!). Never spill component A and B resin parts and use separate tools or containers for mixing and storing otherwise the resin becomes jelly and can block or destroy your spray units.

Substrate

The recognised rules of sound engineering practice apply. Silikal reactive resins are usually applied on bituminous road surfaces. On concrete, composite or natural cobblestone roads, special measures and restrictions must be observed. In particular, additional bonding primers and maximum moisture values are to be applied. Information on this can be obtained from our technical department.

Special remarks

The above mentioned guide formulations do not represent any guarantee on the part of Silikal. The individual formulations must be tested and approved by the applicator and in some countries even by road authorities, when they are to be used on public highways. In private traffic areas (communities, industrial areas, parking garages), individual approval is generally not required, unless this is expressly requested by the client. Silikal makes no guarantee for the recommended recipes. We only guarantee the consistent characteristics of our resins.

Machines and tools can be cleaned with acetone, ethyl acetate or MEK. For health and safety please refer to our safety data sheets.

Other applicable documents	Data sheet
General advice on application	AVH
The substrate	DUG
Information on safety and protection	SUS
Storage and transport	LUT

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