



Foreword

Please observe the following notes on applying the Silikal MMA (methyl methacrylate) coating safely and as intended.

The coating should be planned with care. The construction site must therefore be assessed thoroughly. Check the features on site and the structural conditions and also determine the impact of weather and the environment. In addition, the intended chemical, thermal and mechanical stress on the flooring system needs to be respected. Furthermore the occupational health and safety regulations, employers' liability insurance association regulations and other requirements which specify a particular floor topping design (e.g. anti-slip, electric conductivity, food hygiene regulations) may need to be met.

The "general processing notes" are the product of our many years of experience and are adapted to the processing requirements of our Silikal products.

Interior ventilation

While processing the products, ensure that there is sufficient ventilation to enable the occupational health and safety limits to be observed. Good ventilation also helps the floor coating to cure effectively. Detailed safety notes are given in the section "Information on safety and protection".

Despite ventilation, an odour will be detectable around the area of the coating work. We recommend informing other craftsmen, residents and neighbours in good time. An information sheet template is available from us.

Work in food and feed companies

To eliminate the risk of contamination by the coating substances (whether this involves methyl methacrylate resin, epoxy resin, polyurethane resin or other coating substances), all food and feed products and their packaging should be relocated before the coating work.

Temperature influences

The pot life and curing time of MMA resins are largely determined by the temperature of the substrate to be coated. It is also important to take into account the temperature of the resins and the fillers at the time of processing depending on their previous storage conditions (for example: warm, if they were in the sun or cold, if they were stored in frosty conditions). Please observe the temperature specifications given in the product data sheets, particularly when dosing curing agent and during the coating process.

MMA coatings behave similarly to thermoplastics, i.e. they become softer when warm and harder when cold. Reactive resin coatings can be exposed to stress as follows (taking into account the temperature-dependent pressure resistance):

	Permanent temperature	Short-term, e.g. for cleaning purposes, full heat penetration must be avoided!
Systems B and C	0 °C to +60 °C	Up to +80 °C
System D	-25 °C to +45 °C	Up to +60 °C

All parameters must be observed on a case-by-case basis. For example, the increasing softness at higher application temperatures can result in greater dirt absorption, skid marks, sprinkling sand being impressed (reducing non-slip properties), sinking of sharp-edged shelf units or pallet bases etc.. On the positive side, an increase in crack bridging, impact resistance and substrate adhesion is observed at elevated application temperatures.



Coating thickness

The minimum and maximum thicknesses of each Silikal system must be observed (see system data sheets). If coatings are too thin, this can disrupt the curing process. Coatings which are too thick, on the other hand, can become too hot while curing because of the exothermic reaction, resulting in bulge, breaking off or the coating remaining sticky or soft.

Hard or flexible

For outdoor applications and for highly resilient floors which are exposed to shock, impact and substantial movements, elastic systems are normally used. Hard systems, on the other hand, are preferred for floors subject to high static loads, scratch resistance and chemical resistance. Soft and hard coatings can be combined. In general, the softer coatings are laid on the primer, followed by medium-elasticity coatings as a wearing surface and the hard coatings on top as top coat. An extremely hard coating must never be laid on top of an extremely soft coating, as this could cause hairline cracks in the surface, in particular if thermal stresses (hot water or outdoor applications) and mechanical pressure point loads occur. Soft systems or systems with medium-elasticity are more likely to become soiled and have skid mark problems. Extremely hard types, however, are prone to flaking if the coatings are too thick.

Scratch slurry

To level out minor irregularities, structured surfaces or deep cavities, a scratch slurry is recommended. The smoothing compound is produced on the basis of a coating resin, in conjunction with a Silikal filler and possibly a little anti-flow additive (see data sheet of the main coat resins or membrane resins) and scratched onto the primed and slightly sanded (e.g. SILIKAL® Filler QS 0.7 mm – 1.2 mm) surface. The trowel must be applied back and forth repeatedly in both directions to ensure that deeper cavities are fully closed.

Primers

Substrates must in general be primed in a film-forming and pore-filling manner in a single work step. If the primer resin is fully absorbed by the substrate, a second primer layer must be applied before the primer cures, using a “wet on wet” technique. Puddling must always be avoided. The primer can be pre-spread with a rubber slider and rolled evenly with a paint roller. To assist with work for the following coatings, the primer can be scattered in an open (slightly) manner before it cures with SILIKAL® Filler QS 0.7 – 1.2 mm.

Top coats

Silikal main coats must always be sealed in one or two work steps such that they form a film. Paint rollers with medium hair length are suitable for this (it is essential that they are lint-free). The rubber slider can be used to pre-spread initially, and then the paint roller can be used to roll the layer on in crosswise movements. The roller should cover large distances at a time, ideally perpendicular to the direction of work to avoid contact point marks. If the paint roller is used for too long or too late, curing may be disrupted or visual defects may occur. It must be ensured that the coating thickness is even – puddling must always be avoided. Hard top coats must never be rolled directly onto highly elastic main coats. In such cases, a slightly elasticised intermediate layer must be rolled on, as thermal movements could otherwise cause hairline cracks in the top coat, for example.

Important note regarding top coats

If different production batches of a Silikal top coat are used, minor differences in colour or shine may occur within a surface. We therefore recommend sealing the entire surface with material from the same production batch; this applies both to the resins and to the pigment and hardening powder used. If it is not possible to work with material from only one batch for any reason, the material from different batches should be mixed together, bearing in mind the applicable amount ratios. Exact observance of the mixing ratio and the stirring time when pigmenting the binder and the subsequent addition of the hardening powder will ensure that colour variations within a surface are kept to a minimum.



Coatings (0.3 – 2 mm)

Self-levelling coatings are applied with a smoothing trowel, blade trowel or coating knife. This is followed by reworking with a top coat.

Toppings (2.0 – 6.0 mm)

Toppings are generally slightly thicker coatings. The information stated previously regarding coatings also applies to toppings. Smoothable coatings require particular manual skill if trowel marks are to be avoided. The desired coating thickness needs to be roughly pre-smoothed with a blade and manually compacted and smoothed with a smoothing trowel.

Screed, mortar, stopper mass

Because of their liquid consistency, Silikal mortars are self-compacting and almost self-levelling. A scraper and a smoothing trowel are all that is needed for laying. Depths of over 10 mm are filled with SILIKAL® R 17. Irregularities of 2 to 10 mm, on the other hand, can be levelled out on the basis of suitable Silikal main coat resins with the addition of Silikal fillers. Please consult Silikal for the mixing ratios – we can then investigate your specific needs precisely.

Decorations

To design the colour of a Silikal floor, various products are available such as pigments (SILIKAL® Pigment), coloured flakes (SILIKAL® Flakes), coloured sands (SILIKAL® Filler FS/FM) and decorative layers. Please refer to the individual system data sheets and Silikal brochures for more information.

Non-slip surfaces

Outdoor areas or wet rooms often require non-slip properties. In accordance with the guidelines of the “Berufsgenossenschaftliche Institut für Arbeitssicherheit” [German Employers’ Insurance Association Institute for Occupational Safety], the non-slip properties are categorised under various non-slip classes, prefixed with the letter “R”. The specifications of our test certificates must be taken into account in this regard.

The displacement space “V” refers to the volume (cavity) remaining between the sole of the shoe and the flooring system.

Special note regarding scattered toppings

Silikal generally recommends using filler particle size 0.7 – 1.2 mm for scattering. If finer sizes are used, there is a risk of disrupted curing under unfavourable conditions. However, if finer sand, such as SILIKAL® Filler QS 0.2 – 0.6 mm or 0.3 – 0.8 mm, is used nevertheless, we recommend increasing the amount of SILIKAL® BPO by roughly 0.5 – 1 % above the amount in the corresponding tables of the resin that the sand is to be scattered in. It is also important to ensure even scattering, as pile formation may cause the resin to be sucked upwards, resulting in an uneven surface. We strongly recommend contacting Silikal for a consultation before using fine scattering fillers.

Mixing

Because of their low viscosity, all Silikal systems can be stirred together with a powerful cordless electric mixer (ATEX* guidelines must be observed) in a sufficiently large mixing container in compliance with occupational health and safety and other regulations. Storage, particularly at low temperatures, can cause partial quantities of dissolved paraffins to separate out at the resin surface. It is therefore absolutely essential to stir all Silikal resins before use.

* ATEX = explosion-protection directives of the European Union (abbreviation of the French ATmosphères EXplosibles).

Tool cleaning

Simple cleaning in a non-cured state should be performed in accordance with occupational health and safety and other regulations, ideally with organic solvents based on an ester or ketone (e.g. acetone or SILIKAL® MMA Cleaner). Before further use, solvent residue must be wiped away. Solvents must not be used to dilute mixtures.