

Sikafloor®-81 EpoCem®

3-part cement and epoxy combination mortar for self-smoothing floor screeds of 1.5 to 3 mm

Product Description

Sikafloor®-81 EpoCem® is a three part, epoxy modified cementitious, fine textured mortar for self smoothing floor screeds in thin layers of 1.5 to 3 mm.

Uses

As a Temporary Moisture Barrier (TMB) (min. 2 mm thick) allowing the application of Epoxy, Polyurethane and PMMA* resin floors requiring dry substrates, over high moisture content substrates, even green concrete, for a lasting solution.

As a self-smoothing screed for:

- Levelling or patching horizontal concrete surfaces, in new work or repairs, particularly in aggressive chemical environments
- Floor topping on non-ventilated damp substrates without particular aesthetic requirements
- Levelling layer under epoxy, polyurethane and PMMA floor coatings / screeds, tiles, sheet floors, carpets or wooden floors
- Repair and maintenance of monolithic and vacuum concrete floors

Extended with quartz sand, as a patching and repair mortar under epoxy, polyurethane and PMMA floor coatings/screeds.

Designed for use on cementitious substrates.

* See Notes on Application / Limitations

Characteristics / Advantages

- Can be overcoated with resin based coatings after 24 hours (+20°C / 75% r.h.)
- Prevents osmotic blistering of resin based coatings over damp substrates
- Economical and fast, easy application
- Good levelling properties
- Impervious to liquids but permeable to water vapour
- Frost and de-icing salt resistant
- Good chemical resistance
- Thermal expansion properties similar to concrete
- Excellent bond to green or hardened concrete whether damp or dry
- Excellent early and final mechanical strengths
- Excellent resistance to water and oils
- It is the ideal preparation for smooth surface finishes
- For internal or external use
- Contains no solvents
- Will not corrode reinforcement steel



Mechanical / Physical Properties

Compressive Strength (Internal test results according to EN 196-1)

	+23°C / 50% r.h.
1 day	~ 15 N/mm ²
7 days	~ 50 N/mm ²
28 days	~ 60 N/mm ²

Flexural Tensile Strength (Internal test results according to EN 196-1)

	+23°C / 50% r.h.
1 day	~ 5.8 N/mm ²
7 days	~ 11.1 N/mm ²
28 days	~ 14.0 N/mm ²

Bond Strength 4.1 N/mm² (after 28 days / at +20°C / 50% r.h.) (100% concrete failure) (EN 13892-8)

E- Modulus (Static) ~ 19.9 kN/mm² (at +20°C) / ~ 23.2 kN/mm² (at -20°C) (SIA 162/1 Test No. 3)

Abrasion Resistance 11.9 cm³ / 50 cm² / 2.4 mm (Böhme abrasion) (EN 13892-3)

Resistance

Chemical Resistance Resistant to many chemicals. Please ask for a detailed chemical resistance table.

System Information

System Structure The system configuration as described must be fully complied with and may not be changed.

Primer indicated below is suitable for each of these substrates:

- Green concrete (as soon as mechanical preparation is possible)
- Damp concrete (> 14 days old)
- Damp aged concrete (rising moisture)

Levelling screed for medium substrate roughness

- Layer thickness: 1.5 - 3 mm
- Primer: Sikafloor®-155 WN
- Topping: Sikafloor®-81 EpoCem®

Application Details

Consumption / Dosage *Primer*
Sikafloor®-155 WN (parts A+B), thinned with 10% water, ~ 0.3 - 0.5 kg/m² dependent on the substrate conditions, when repairing monolithic or vacuum concrete, or without a broadcast finish or when Sikafloor®-81 EpoCem® is overcoated with itself.

Self smoothing screed

Sikafloor®-81 EpoCem® ~ 2.25 kg/m²/mm

~ 4.5 kg/ m² for a 2 mm thick application (minimum for T.M.B.).

These figures are theoretical and do not include for any additional material required due to surface porosity, surface profile, variations in level or wastage, etc.

Substrate Quality The concrete substrate must be sound and of sufficient compressive strength (minimum 25 N/mm²) with a minimum pull-off strength of 1.5 N/mm².

The substrate can be damp but must be free of standing water and free of all contaminants such as oil, grease, coatings and surface treatments, etc.

Substrate Preparation Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve a profiled open textured surface. Weak concrete must be removed and surface defects such as blow holes and voids must be fully exposed.

Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor[®], Sikadur[®] and Sikagard[®] range of materials. High spots can be removed by grinding.

All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush or vacuum.

Application Conditions / Limitations

Substrate and Ambient Temperature +8°C min. / +30°C max.

Substrate Moisture Content Can be applied on green or damp concrete, without any standing water. Although the product can be applied onto green concrete surfaces (> 24 hours), it is advised to allow at least 3 days for early shrinkage of concrete to occur in order to prevent concrete shrinkage cracks from appearing on the screed surface.

Relative Air Humidity 20% min. / 80% max.

Dew Point Beware of condensation!
The substrate and uncured floor temperature must be at least 3°C above the dew point to reduce the risk of condensation or blooming on the floor finish.

Application Instructions

Mixing Part A : part B : part C - packing size : 1.14 : 2.86 : 19 kg

Flooring Screed
At temperatures between +12°C to +25°C:
1 : 2.5 : 17 (by weight)
Parts (A+B) : C = 4 kg : 19 kg
At temperatures between +8°C to +12°C and +25°C to +30°C:
The amount of part C can be reduced to 18 kg in order to improve workability. Never reduce part C by more than this amount.
1 : 2.5 : 15.8 (by weight)
Parts (A+B) : C = 4 kg : 18 kg

Extended mortar mix. Repair mortar
To repair surface irregularities and holes deeper than 3 mm the standard Sikafloor[®]-81 EpoCem[®] mix can be extended with dry quartz sand.
For each 23 kg unit of Sikafloor[®]-81 EpoCem[®] prepared as indicated below, add:

Sikadur [®] -509 (quartz sand 0.7 - 1.2 mm)	5 - 10 kg and
Sikadur [®] -510 (quartz sand 2.0 - 3.0 mm)	5 - 10 kg
Final mix will be :	33 - 43 kg

For this application, to achieve a good bond of the mortar to the substrate, SikaTop[®]-Armotec[®] 110 EpoCem[®] must be used as a primer. Apply the mortar wet on wet to the primer.

Mixing Time Prior to mixing, shake part A (white liquid) briefly until homogenous, then pour into the can of part B and shake vigorously again for at least 30 seconds. When dosing out of drums, stir and homogenise first.

Pour the mixed binder mixture (A+B) into a suitable mixing container (capacity of about 30 litres) and gradually add part C to the mixer while stirring with a power mixer. Mix thoroughly for 3 minutes until a uniform mix has been achieved.

When dosing with additional aggregates, add them after adding part C to the mix.

Mix thoroughly for 3 minutes until a uniform mix has been achieved.

Mixing Tools Mix using a slow speed electric mixer (300 - 400 rpm) with helical paddle or other suitable equipment.
Recommended mixers are single or counter rotating double basket type and forced action (pan type) mixers. Free fall mixers must not be used.

Application Method / Tools Place the Sikafloor®-81 EpoCem® onto the primed substrate and spread evenly to the required thickness uniformly with a rubber or metal trowel or spatula and immediately roll with a spike roller to remove entrapped air and obtain an even layer.
Workability can be adjusted by varying slightly the amount of part C. See "Mixing" above.
Do not use additional water, which would disturb the surface finish and cause discolouration.
A seamless finish can be achieved if a "wet" edge is maintained during application.

Cleaning of Tools Clean all tools and application equipment with water immediately after use. Hardened and/or cured material can only be mechanically removed.

Pot Life (23 kg set)	Temperature / r.h. 75%	
	Temperature	Time
	+10°C	~ 40 minutes
	+20°C	~ 20 minutes
	+30°C	~ 10 minutes

Waiting Time / Overcoatability Before application of Sikafloor®-81 EpoCem® onto Sikafloor®-155 WN allow:

Substrate temperature	Waiting time	
	Minimum	Maximum
+10°C	24 hours	48 hours
+20°C	12 hours	24 hours
+30°C	8 hours	12 hours

Sikafloor®-81 EpoCem® can be over coated with vapour tight surface sealers when the surface humidity falls below 4%! Not earlier than:

Substrate temperature	Waiting time
+10°C	2 days
+20°C	1 day
+30°C	1 day

Note: Successive coats of Sikafloor®-81 EpoCem® must be applied after priming with Sikafloor®-155 WN and allowing at least the minimum times indicated above between applications.

Times are approximate at 75% r.h. and will be affected by changing ambient conditions, particularly temperature and relative humidity.

Notes on Application / Limitations If Sikafloor®-81 EpoCem® is used as TMB (Temporary Moisture Barrier), a layer of a minimum 2 mm thick must be applied (~ 4.5 kg/m²).

Always ensure good ventilation when using Sikafloor®-81 EpoCem® in a confined space.

Freshly applied Sikafloor®-81 EpoCem® must be protected from damp, condensation and water for at least 24 hours.

For external applications, apply primer and Sikafloor®-81 EpoCem® on a falling temperature. If applied during rising temperatures "pin holing" may occur.

External applications under extreme conditions (high temperature and low humidity) which may cause fast drying of the product must be avoided as the product does not allow the use of curing compounds.

Under no circumstances add water to the mix.

Non-moving construction joints require pre-treatment with a stripe of primer and Sikafloor®-81 EpoCem®. Treat as follows:

Static Cracks - Prefill and level with Sikadur® or Sikafloor® epoxy resin.

Dynamic Cracks (> 0.4 mm) - To be assessed and if necessary apply a stripe coat of elastomeric material or design as a movement joint.

The incorrect assessment and treatment of cracks may lead to a reduced service life and reflective cracking.

Colour deviations may occur on unsealed Sikafloor®-81 EpoCem® through direct sun radiation. This however, will not adversely influence the mechanical properties.

Curing Details

Applied Product Ready for Use	Temperature	Foot traffic	Light traffic	Full cure
	+10°C	~ 24 hours	~ 3 days	~ 14 days
	+20°C	~ 15 hours	~ 2 days	~ 7 days
	+30°C	~ 7 hours	~ 1 day	~ 4 days

Note: Times are approximate and will be affected by changing ambient conditions.

Cleaning / Maintenance

Methods
 Due to the texture of its surface, Sikafloor®-81 EpoCem® is not suitable to be used as a wearing layer where staining may occur. A sealer coat from of the Sikafloor® range with suitable cleaning capabilities is advisable.
 Remove dirt using a brush and/or vacuum. Do not use wet cleaning methods until product is fully cured.
 Do not use abrasive cleaning systems or equipment.

Value Base

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet (available upon request) containing physical, ecological, toxicological and other safety-related data.

Legal Notes

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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