BUILDING TRUST

PRODUCT DATA SHEET

Sikafloor®-81 EpoCem®

Three-part cement and epoxy combination mortar for self-smoothing floor

DESCRIPTION

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

USES

Sikafloor®-81 EpoCem® may only be used by experienced professionals.

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As a Temporary moisture barrier (TMB)
(min. 2 mm thick) allowing the application of Sika® 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, in aggresive chemical environments
- Floor topping on non-ventilated damp substrates without particular aesthetic requirements
- Levelling layer under Sika® Epoxy, Polyurethane and PMMA* floor coatings / screeds, tiles, sheet floors, carpets or wooden floors
- Repair and maintenance of monolithic and vacuum concrete floors

Designed for use on cementitious substrates:
* See Notes on Application / Limitations

CHARACTERISTICS / ADVANTAGES

- Can be overcoated with resin based floor finishes after 24 hours (+20°C, 75% r.h.)
- Prevents osmotic blistering of resin based coatings over damp substrates
- Economical and fast, easy application
- Concrete repair mortar: EN 1504-3:Class R4
- 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
- Ideal preparation for smooth surface finishes
- Will not corrode reinforcement steel

APPROVALS / CERTIFICATES

- ITT reports (*) for EN 1504-2 Ref. 09/349-963, dated May 6th 2009 and EN 1504-3 Ref. 09/351-965 dated May 4th, 2009 by Applus Laboratory, Barcelona, Spain. *confirm with producing company
- Epoxy modified cementitious mortar for self-smoothing floor screeds according to EN 1504-2: 2004, EN 1504-3: 2005 and EN 13813:2002, DoP 02 08 02 01 001 0 000001 1001, certified by Factory Production Control Body No. 2116 and provided with CE-mark.
- JC/T 984

PRODUCT INFORMATION

Composition	Epoxy modified cementitious mortar	
Packaging	Part A	1,14 kg
	Part B	2,86 kg
	Part C	19 kg

Shelf life

Part A and Part B:	12 months
Part C:	9 months

Storage conditions

The product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C.

Part A and part B:	Protect from frost
Part C:	Protect from humidity

Appearance and colour

Part A:	white, liquid
Part B:	transparent yellowish, liquid
Part C:	natural grey aggregate, powder
Colour:	light grey
Finish colour:	matt

Ral colours, please inquire Sika
In case of bright colour shades, e.g. yellow or orange, colour deviations may occur due to backfilling with quartz sand. Under direct sun radiation there may be some discolouration and colour deviation; this has no influence to the function and performance of the coating.

Density

Part A	~1,05 kg/l	(EN 1015-6)
Part B	~1,03 kg/l	
Resin mixed	~1,72 kg/l	
Parts A+B+C mixed	~2,10 kg/l	

All Density values at +20 °C.

Volatile organic compound (VOC) content

< 60 g/L	(GB/T 22374)

TECHNICAL INFORMATION

Compressive strength

Time	+23°C / 50% r.h.	(EN 13892-2)
1 day	~15 MPa	
7 days	~50 MPa	
28 days	~60 MPa	

Tensile strength in flexure

Time	+23 °C / 50 % r.h.	(EN 13892-2)
1 day	~5,8 N/mm²	
7 days	~11.1 N/mm²	
28 days	~14 N/mm²	

Service temperature

-30 °C to +80 °C for continuous exposure.

Chemical resistance

The Sikafloor® EpoCem® product range has improved chemical resistance over plain concrete in aggresive environments, but is noy designed as a chemical protection. For specific chemical resistance, always overcoat with a suitable product of the Sikafloor® range. For occasional exposure or spillages, please consult Sika Technical Services department.

Reaction to fire

Class $A2_{(fl)}$ (EN 13501-1)

SYSTEM INFORMATION

Systems

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®-81 EpoCem® (A+B)
Screed: Sikafloor®-81 EpoCem® (A+B+C)

APPLICATION INFORMATION

Mixing ratio

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

Consumption

Self-smoothing screed:

Coating system	Product	Consumption
Primer:	Sikafloor®-81 EpoCem® (A+B)	2 x 0.1-0.2 kg/m²/layer
Surface coating:	Sikafloor®-81 EpoCem® (A+B+C)	~ 2,25 kg/m²/mm (for T.M.B at least 2mm)

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

Layer thickness

1.5 mm min. / 3.0 mm max.
If Sikafloor®-81 EpoCem® is used as a Temporary moisture barrier (TMB), a minimum of 2 mm must be applied.

Ambient air temperature

+8 °C min. / +30 °C max.

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.

Substrate temperature

+8 °C min. / +30 °C max.

Substrate moisture content

Can be applied on green or damp concrete, without any standing water.

Pot Life

Temperature	Time
+10 °C	~ 40 minutes
+20 °C	~ 20 minutes
+30 °C	~ 10 minutes

23 kg units

Waiting time to overcoating

Before applying Sikafloor®-81 EpoCem® on Sikafloor®-81 EpoCem® (A+B) allow:

Substrate temperature	Minimum	Maximum
+10 °C	~ 12 hours	~ 72 hours
+20 °C	~ 6 hours	~ 48 hours
+30 °C	~ 4 hours	~ 24 hours

Sikafloor®-81 EpoCem® can be overcoated with vapour tight coatings when the surface humidity falls below 4%! Not ealier than:

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

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

BASIS OF PRODUCT DATA

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

IMPORTANT CONSIDERATIONS

- 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 product in a confined space to remove excess moisture.
- Freshly applied Sikafloor®-81 EpoCem® must be protected from damp, condensation and water for at least 24 hours.
- Prevent premature drying by protecting from strong wind and do not expose to direct sun light while fresh.
- Apply primer and Sikafloor®-81 EpoCem® on a falling temperature. If applied during rising temperatures “pin holing” can occur.
- Applications under extreme conditions (high temperature and low humidity) which can 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.
- Colour variations can occur on unsealed Sikafloor®-81 EpoCem® must be fully broadcast with sand 0.4-0.7 mm.
- When overlaying with PMMA screeds, the surface of Sikafloor®-81 EpoCem® must be fully broadcast with quartz sand 0.4 - 0.7 mm.
- The TMB effect in Sikafloor® -EpoCem® is limited in time, without additional preparation.
- Always verify the surface moisture content if more than 5-7 days have passed since application.

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 on site and if necessary apply a stripe coat of elastomeric material or design as a movement joint.
- The incorrect assessment and treatment of cracks can lead to a reduced service life and reflective cracking.

ECOLOGY, HEALTH AND SAFETY

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

DIRECTIVE 2004/42/CE LIMITATION OF EMISSIONS OF VOC

According to the EU Directive 2004/42/CE, the maximum allowed content of VOC (product category IIA / C type wb) is 40 g/l (Limits 2010) for the ready to use product.
The maximum content of Sikafloor®-81 EpoCem® is ≤ 40 g/l VOC for the ready to use product.

APPLICATION INSTRUCTIONS

EQUIPMENT

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

SUBSTRATE QUALITY / PRE-TREATMENT

- The concrete substrate must be sound and of sufficient compressive strength (minimum 25 N/mm²) with a minimum pull off strength 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. If in doubt, apply a test area first.
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- Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an 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 materials must be completely removed from all surfaces before application of the product, preferably by brush or vacuum.

MIXING

Part A : Part B : Part C - packing size : 1,14 : 2.86 : 19 kg
Flooring Screed:
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APPLICATION

Prior to mixing, shake part A (white liquid) briefly until homogenous, then pour into container 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.

CLEANING OF EQUIPMENT

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

MAINTENANCE

Due to the texture of its surface Sikafloor®-81 EpoCem® is not suitable to be used as wearing layer where easy staining can occur. A seal coat 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 the product is fully cured. Do not use abrasive methods or cleaners.

LOCAL RESTRICTIONS

Note that as a result of specific local regulations the declared data and recommended uses for this product may vary from country to country. Consult the local Product Data Sheet for exact product data and uses.

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.