

PRODUCT DATA SHEET

Sikafloor®-81 EpoCem®

Epoxy-cement hybrid for self-smoothing floor screeds (1.5–3 mm)

DESCRIPTION

Sikafloor®-81 EpoCem® is a three-part, epoxy modified cementitious, fine textured mortar for self-smoothing floor screeds in layers of 1.5 to 3 mm. It allows the application of epoxy, polyurethane and PMMA resin floors over high moisture content substrates or green concrete.

USES

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

Sikafloor®-81 EpoCem® is used as a:

- Temporary Moisture Barrier (TMB)
- Self-smoothing wearing screed without aesthetic requirements
- Levelling screed under Sikafloor® resins and floor coverings
- Patching screed for horizontal concrete repairs

Please note:

- The Product may only be used for interior applications.
- The Product may only be used by experienced professionals.

CHARACTERISTICS / ADVANTAGES

- Can be over coated with resin based floors after 24 hours (at +20 °C, 75 % r.h.)
- Prevents osmotic blistering of resin based coatings over damp substrates
- Easy to apply
- Impermeable to liquids
- Good water vapour permeability
- Class R4 of EN 1504-3
- Good freeze-thaw de-icing salt resistance

- Good resistance to specific chemicals
- Thermal expansion properties similar to concrete
- Good adhesion to green or hardened damp concrete
- Very good initial and ultimate mechanical strength
- High resistance to water and oils
- Will not corrode reinforcement steel

ENVIRONMENTAL INFORMATION

- Environmental Product Declaration (EPD) in accordance with EN 15804. EPD independently verified by Institut für Bauen und Umwelt e.V. (IBU)
- Contributes towards satisfying Materials and Resources (MR) Credit: Building product disclosure and optimization — Environmental Product Declarations under LEED® v4
- Contributes towards satisfying Materials and Resources (MR) Credit: Building Product Disclosure and Optimization — Material Ingredients under LEED® v4

APPROVALS / STANDARDS

- CE marking and declaration of performance based on EN 1504-2:2004 Products and systems for the protection and repair of concrete structures — Surface protection systems for concrete — Coating
- CE marking and declaration of performance based on EN 1504-3:2005 Products and systems for the protection and repair of concrete structures — Structural and non-structural repair
- CE marking and declaration of performance based on EN 13813:2002 Screed material and floor screeds — Screed material — Properties and requirements — Synthetic resin screed material
- Migration test EN 23270, Sikafloor®-81 EpoCem, kiwa, Report No. P 8740a
- Water permeability test DIN 1048-5, Sikafloor®-81 EpoCem, Polymer Institut, Repo

PRODUCT INFORMATION

Chemical Base	Epoxy-cement hybrid		
Packaging	Container Part A	1.14 kg	
	Container Part B	2.86 kg	
	Part C	19 kg	
	Packaging combined	Pre-batched 23 kg units.	
	Refer to the current price list for available packaging variations.		
Appearance / Colour	Part A	white liquid	
	Part B	transparent yellow liquid	
	Part C	natural grey aggregate powder	
	Cured appearance	Smooth, matt finish	
	Cured colour	light grey	
<p>Note: When the Product is exposed to direct sunlight, there may be some discolouration and colour variation. This has no influence on the function and performance of the Product.</p> <p>For colour matching: apply colour sample and confirm selected colour under real lighting conditions.</p>			
Shelf Life	Part A	12 months from date of production	
	Part B	12 months from date of production	
Always refer to the best-before date of the individual packaging.			
Storage Conditions	<p>The Product must be stored in original, unopened and undamaged sealed packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to the packaging.</p> <p>Refer to the current Safety Data Sheet for information on safe handling and storage.</p>		
Density	Mixed Product	2.10 kg/l	(EN ISO 2811-1)
	Part A	1.05 kg/l	
	Part B	1.03 kg/l	

TECHNICAL INFORMATION

Compressive Strength	Cured 28 days at +23 °C	60 N/mm ²	(EN 13892-2)
	Cured 7 days at +23 °C	50 N/mm ²	
Tensile Strength in Flexure	Cured 28 days at +23 °C	14 N/mm ²	(EN 13892-2)
	Cured 7 days at +23 °C	11 N/mm ²	
Coefficient of Thermal Expansion	15.2 × 10 ⁻⁶ 1/K		(EN 1770)
Reaction to Fire	Class A2 _{fl} -s1		(EN 13501-1)

Freeze Thaw De-Icing Salt Resistance	Resistance factor WFT-L 98 % (High)	(VSS-40464)
Permeability to Water Vapour	$\mu\text{H}_2\text{O}$	252
	Equivalent air layer depth for 3 mm thickness: $S_d = 0.75 \text{ m}$	
Carbonation Resistance	Equivalent air layer thickness, Method A	12.5 m (3 mm thickness)
Water Absorption	$0.02 \text{ kg}\cdot\text{m}^{-2}\cdot\text{h}^{-0.5}$	(EN 1062-6)
		(DIN 52617)

APPLICATION INFORMATION

Mixing Ratio	TEMPORARY MOISTURE BARRIER AND SELF SMOOTHING SCREED	
	At temperatures between +12 °C to +25 °C:	
	Part A : Part B : Part C (by weight)	1 : 2.5 : 17
	Part A + Part B : Part 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 the part C to less than the following:	
	Part A : Part B : Part C (by weight)	1 : 2.5 : 15.8
	Part A + Part B : Part C	4 kg : 18 kg
	CONCRETE PATCH REPAIR MORTAR	
	For use as a repair mortar Sikafloor®-81 EpoCem® can be bulked out with dry quartz sand.	
	For each 23 kg unit of Sikafloor®-81 EpoCem® add the following:	
	5 kg to 10 kg of Quartz sand (0.7-1.2 mm) plus 5 kg to 10 kg of Quartz sand (2.0-3.0 mm)	
	Final mix will be 33 kg to 43 kg in total.	
Consumption	2.25 kg/m ² per mm of thickness	
	4.5 kg/m ² for a 2 mm thick application (minimum for temporary moisture barrier)	
	Note: Consumption data is theoretical and does not allow for any additional material due to surface porosity, surface profile, variations in level, wastage or any other variations. Apply the Product to a test area to calculate the exact consumption for the specific substrate conditions and proposed application equipment.	
Product Temperature	Maximum	+30 °C
	Minimum	+8 °C
Ambient Air Temperature	Maximum	+30 °C
	Minimum	+8 °C
Relative Air Humidity	Maximum	80 % r.h.
	Minimum	20 % r.h.
Substrate Temperature	Maximum	+30 °C
	Minimum	+8 °C
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), 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.	
Pot Life	+10 °C	40 minutes
	+20 °C	20 minutes
	+30 °C	10 minutes
Curing Time	Once Sikafloor®-81 EpoCem® is tack free it is possible to apply vapour per-	

meable seal coats.

For the application of vapour tight coatings on Sikafloor®-81 EpoCem®, allow the surface moisture to fall below 4%, not earlier than:

<u>Substrate temperature</u>	<u>Waiting time</u>
+10 °C	~ 2 days
+20 °C	~ 1 day
+30 °C	~ 1 day

BASIS OF PRODUCT DATA

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.

FURTHER DOCUMENTS

Refer to the following method statements:

- Sika Method Statement — Evaluation and preparation of surfaces for flooring systems
- Sika Method Statement — Sikafloor® mixing and application

ECOLOGY HEALTH AND SAFETY

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

APPLICATION INSTRUCTIONS

EQUIPMENT

MIXING EQUIPMENT

- Electric double-paddle mixer (> 700 W, 300 rpm to 400 rpm)
- Forced action mixer

APPLICATION EQUIPMENT

- Smoothing trowel
- Spiked roller

SUBSTRATE QUALITY

IMPORTANT

Reduced service life due to incorrect treatment of cracks

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

1. For static cracks, ensure the width is suitable for overcoating with Sikafloor®-81 EpoCem®.
2. For dynamic cracks, ensure the movement is within the movement capacity of Sikafloor®-81 EpoCem®.

TREATMENT OF JOINTS AND CRACKS

Construction joints and existing static surface cracks in substrate require pre-treating before full layer application. Use Sikadur® or Sikafloor® resins.

SUBSTRATE PREPARATION

MECHANICAL SUBSTRATE PREPARATION

IMPORTANT

Surface defects due to voids in the substrate

Voids and blow holes in the substrate will weaken the surface and damage the covering Product if not repaired during the preparation process.

1. Fully expose blow holes and voids during surface preparation to identify the required repairs.
 1. Remove weak cementitious substrates.
 2. Prepare cementitious substrates mechanically using abrasive blast cleaning, abrasive planing or scarifying equipment to remove cement laitance.
 3. Before applying thin layer resins, remove high spots by grinding.
 4. Before applying the Product, remove all dust, loose and friable material from the application surface with an industrial vacuuming equipment.
 5. Level the surface or fill cracks, blow holes and voids with products from the Sikafloor®, Sikadur® and Sikagard® range of materials.

For additional information on products for leveling and repairing defects, contact Sika® Technical Services.

SUBSTRATE PREPARATION OF NON-CEMENTITIOUS SUBSTRATES

For information on substrate preparation of non-cementitious substrates, contact Sika® Technical Services.

MIXING

IMPORTANT

Addition of water

Do not add water to the mix or for finishing as this will affect the performance, surface finish and cause discolouration.

IMPORTANT

Unsuitable mixing equipment

Unsuitable mixing equipment will not combine the mix thoroughly or entrain too much air into the mix.

1. Do not use free fall mixers.

IMPORTANT

Avoid over-mixing to minimise air entrainment.

TEMPORARY MOISTURE BARRIER AND SELF SMOOTHING SCREED

1. Mix Part A (resin) for ~10 seconds with an electric double paddle mixer (300–400 rpm, > 700 W).
2. Add Part B (hardener) to Part A.
3. **IMPORTANT** Do not mix excessively. Mix for a further 2 minutes until a uniform mix is achieved.
4. Pour the mixed binder mixture (Parts A+B) into a suitable mixing container (capacity ~60 litres). Mix using the electric mixing equipment and gradually add Part C.

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5. Mix continuously for 3 minutes, until a uniform mix is achieved.
6. To ensure thorough mixing, pour materials into another container and mix again to achieve a smooth and uniform mix.
7. During the final mixing stage, scrape down the sides and bottom of the mixing container with a flat or straight edge trowel at least once to ensure complete mixing.

CONCRETE PATCH REPAIR MORTAR

1. Mix Part A (resin) for ~10 seconds with an electric double paddle mixer (300–400 rpm, > 700 W).
2. Add Part B (hardener) to Part A.
3. **IMPORTANT** Do not mix excessively. Mix for a further 2 minutes until a uniform mix is achieved.
4. Pour the mixed binder mixture (Parts A+B) into a suitable mixing container (capacity ~60 litres). Mix using the electric mixing equipment and gradually add Part C.
5. Mix continuously for 3 minutes, until a uniform mix is achieved.
6. Gradually add the additional aggregates in the required quantities and mix for a further 3 minutes until a uniform lump free mix has been achieved.
7. During the final mixing stage, scrape down the sides and bottom of the mixing container with a flat or straight edge trowel at least once to ensure complete mixing.

APPLICATION

IMPORTANT

Strictly follow installation procedures

Strictly follow installation procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

IMPORTANT

Protect from moisture

After application, protect the Product from damp, condensation and direct water contact for at least 24 hours.

IMPORTANT

Ventilation in confined spaces

Always ensure good ventilation when applying the Product in a confined space.

IMPORTANT

Pin holes caused by application during rising temperature

If the Product is applied on porous substrates during rising temperature, pin holes may form from rising air.

1. Apply the Product during falling temperatures.

IMPORTANT

Do not use curing compounds

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.

IMPORTANT

Risk of cracking during curing

Allowing the Product surface to dry excessively and quickly during the curing period will result in surface cracking.

1. Protect the freshly applied Product from high ambient temperatures, direct sunlight and draughts.

Overcoating with PMMA

Note: When overlaying with PMMA screeds, the Product surface must be fully broadcast with clean and dry quartz sand.

Moisture barrier

Note: The TMB effect is limited in time without additional preparation. Always verify the surface moisture content if more than 8 days have passed since application.

TEMPORARY MOISTURE BARRIER OR SELF SMOOTHING SCREED

1. Pour the mixed Product onto the substrate. For the consumption, refer to Application Information.
2. Apply the Product evenly over the surface with a trowel.
3. Back-roll the surface in two directions at right angles with a spike roller.

Note: Maintain a "wet edge" during application to achieve a seamless finish.

CONCRETE PATCH REPAIR MORTAR

1. As a bonding primer apply SikaTop® Armatec®-110 EpoCem® onto the prepared substrate by brush.
2. Place the mixed repair mortar onto the bonding primer 'wet on wet' using a gloved hand or trowel without the formation of voids.
3. Finish to the required surface texture using trowel or sponge as soon as the repair mortar has started to harden.

CLEANING OF TOOLS

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

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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