

Sikagard®-720 EpoCem®

3-part cement and epoxy combination micro mortar
for surface sealing

Product Description

SikaGard®-720 EpoCem® is a three part, epoxy modified cementitious, thixotropic, fine textured mortar for levelling and finishing of concrete, mortar or stone surfaces.

Uses

- As a levelling layer over concrete and mortars in 0.5 - 3 mm on vertical or horizontal surfaces, in new works or repairs, particularly in aggressive chemical environments
- As a Temporary Moisture Barrier (TMB) (min. 2 mm thick) under Epoxy, Polyurethane and PMMA* resins, over high moisture content substrates, even green concrete
- As a pore sealer for the reprofiling, smoothing and levelling of concrete surfaces
- In the food industry, as a levelling and smoothing layer for walls and coverings, prior to the application of a suitable Sika® epoxy or PUR finish

* See Notes on Application / Limitations

Characteristics / Advantages

- Excellent protection of concrete in aggressive environments
- Good chemical resistance
- Easy and fast application
- Impervious to liquids but permeable to water vapour
- Excellent bond to green or hardened concrete whether damp or dry
- Minimum waiting time prior to the application of other Sika® resin based finish products
- It is the ideal preparation for smooth surface finishes
- For internal or external use
- Contains no solvents

Tests

Approval / Standards

All values indicated are from the Qualification tests in accordance with SIA 162/5, report A-29'212-1, dated 26/09/2005 from LPM AG, CH-5712 Beinwil am See.

Construction



Product Data

Form

Appearance /Colours	Part A - resin:	white liquid
	Part B - hardener:	transparent yellow liquid
	Part C - filler:	Aggregate powder
	Colour:	grey
	Finish:	matt

Packaging	Pre-dosed 21 kg sets.	
	Part A:	1.14 kg plastic bottle
	Part B:	2.86 kg plastic jerrycan
	Part C:	17.0 kg plastic lined double paper bags

Storage

Storage Conditions/ Shelf-Life	Part A, part B:	12 months
	Part C:	9 months
From date of production if stored in original, unopened and undamaged sealed packaging, in dry conditions at temperatures between +5 °C and +30 °C.		
	Part A, part B:	Protect from frost
	Part C:	Protect from humidity

Technical Data

Chemical Base	Epoxy modified cementitious mortar.	
Density	Part A:	~ 1.05 kg/l (at +20 °C)
	Part B:	~ 1.03 kg/l (at +20 °C)
	Part C:	~ 1.30 kg/l (at +20 °C)
	Mixed A+B+C:	~ 2.00 kg/l (at +20 °C)
Layer Thickness	0.5 mm min. / 3.0 mm max. Isolated and confined small areas (< 0.01 m ²) up to 5 mm	
Thermal Expansion Coefficient	$\alpha \approx 16.9 \cdot 10^{-6}$ per °C (Temperature range: -20 °C to +60 °C)	(SN EN 1770)
Carbon Dioxide Diffusion Coefficient (μCO_2)	$\mu\text{CO}_2 \approx 7,000$.- Carbonation resistance for 1 mm thickness: $R \approx 7$ m	(SN EN 1062-6)
Water Vapour Diffusion Coefficient ($\mu\text{H}_2\text{O}$)	$\mu\text{H}_2\text{O} \approx 257$.- Equivalent air layer thickness for 1 mm thickness: $S_d \approx 0.25$ m	(EN ISO 7783-3)
Water Absorption Coefficient W	$W \approx 0.03$ kg/m ² x h ^{0.5}	(SN EN 1062-3)
Service Temperature	-30 °C to +80 °C in continuous exposure.	

Mechanical / Physical Properties

Compressive Strength	~ 46.9 N/mm ² after 28 days at +20 °C and 50% r.h.	(SIA 162/1)
Flexural Strength	~ 6.4 N/mm ² after 28 days at +20 °C and 50% r.h.	(SIA 162/1)
Bond Strength	~ 4.4 N/mm ² after 29 days +20 °C and 50% r.h. (50%concrete failure)	(SN EN 1542)
Freeze / Thaw / De-Icing Salt Resistance BE II	Resistance Factor WFT-99% (High)	(Methode BE II acc. to D-R)
E-Modulus	<i>Static:</i>	
	~ 17.2 kN/mm ² (at +20 °C)	(SIA 162/1)

Resistance

Chemical Resistance The Sikafloor® EpoCem® product range has improved chemical resistance over plain concrete in aggressive environments, but is not 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.

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)

Vertical or horizontal pore filling, repair and levelling:
Layer thickness: 0.5 - 3 mm
Primer: Water saturation with matt, damp appearance
Topping: Sikagard®-720 EpoCem®

Application Details

Consumption / Dosage *Primer:*
Water dependent on substrate absorbency.

Screed / Mortar / Render:
~ 2.0 kg/m²/mm

This figure is theoretical and does 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 must be damp but 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 high pressure water jetting equipment to remove cement laitance, especially oil or wax containing layers 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 material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum.

Application Conditions / Limitations

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

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

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

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

Application Instructions

Mixing

Part A : part B : part C - packaging size: 1.14 : 2.86 : 17 kg
1 : 2.5 : 14 - 15 (by weight)
Parts (A+B) : C = 4 kg : 17 kg

Mixing Time

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

Pour the mixed binder (A+B) into a suitable mixing container (capacity of about 30 litres) and gradually add part C while stirring with a power mixer. 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.

Also suitable are single or counter rotating double mortar (basket type) and forced action (pan type) mixers. Free fall mixers must not be used.

Application Method / Tools

Place mixed Sikagard®-720 EpoCem® onto the matt-damp substrate and spread evenly to the required thickness with a trowel or spatula. When necessary, it may be finished with a moist neoprene sponge or brush.

Do not use additional water, which would disturb the surface finish and cause discolouration.

Freshly applied Sikagard®-720 EpoCem® must be protected from rain for at least 24 hours.

Once Sikagard®-720 EpoCem® is tack free it is possible to apply vapour permeable seal coats. Always verify that surface moisture < 4% when applying vapour tight coatings.

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 / cured material can only be mechanically removed.

Potlife

21 kg unit

Temperature	Time
+10 °C	~ 80 minutes
+20 °C	~ 40 minutes
+30 °C	~ 20 minutes

Waiting Time / Overcoating

Before any subsequent application when using vapour tight surface sealers on SikaGard®-720 EpoCem®, allow the surface moisture to fall below 4%, not earlier than:

Substrate temperature	Waiting time
+10 °C	~ 60 hours
+20 °C	~ 15 hours
+30 °C	~ 8 hours

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

Notes on Application / Limitations

Always ensure good ventilation when using Sikagard®-720 EpoCem® in a confined space, to remove excess moisture.

Freshly applied Sikagard®-720 EpoCem® must be protected from damp, condensation and water for at least 24 hours.

For external applications, apply primer and Sikagard®-720 EpoCem® on a falling temperature. If applied during rising temperatures "pin holing" can occur.

Non moving construction joints require pre-treatment with a stripe coat of primer and Sikagard®-720 EpoCem®. Treat as follows:

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

Dynamic Cracks (> 0.4mm): 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.

Colour variations can occur on unsealed Sikagard®-720 EpoCem® through exposure to direct sun light. This however, will not influence the mechanical properties.

When overlaying with PMMA screeds, the surface of Sikagard®-720 EpoCem® must be fully broadcast with sand 0.4 - 0.7 mm

Curing Details

Applied Product ready for use

Temperature	Full cure
+10 °C	~ 14 days
+20 °C	~ 7 days
+30 °C	~ 4 days

Note: All cure times are approximate and will be affected by changing substrate and ambient conditions.

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.

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.

Health and Safety Information

For information and advice on the safe handling, storage and disposal of chemical products, users should refer to the most recent Material Safety Data Sheet 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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