

PRODUCT DATA SHEET

Sikagard[®]-720 EpoCem[®]

3-PART CEMENT AND EPOXY COMBINATION MICRO MORTAR FOR SURFACE SEALING

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.
 - Application in new works or damaged concrete, in aggressive chemical environments
 - Application over high moisture content substrates, even green concrete
 - As a Temporary Moisture Barrier (TMB) (min. 2 mm thick) allowing the application of Epoxy, Polyurethane and PMMA* resin coatings requiring dry substrates, for a lasting solution.
 - As a pore sealer for the reprofiling, smoothing and levelling of concrete surfaces
 - Suitable for moisture control (Principle 2, method 2.3 of EN 1504-9)
 - Suitable for restoration work (Principle 3, method 3.1 and 3.3 of EN 1504-9).
 - Suitable for physical resistance (Principle 5, method 5.1 of EN 1504-9)
 - Suitable for preserving or restoring passivity (Principle 7, method 7.1 and 7.2 of EN 1504-9)
 - Suitable for increasing resistivity (Principle 8, method 8.3 of EN 1504-9)
- * See Notes on Application / Limitations

CHARACTERISTICS / ADVANTAGES

- Improved chemical resistance compared to PCC mortar
- Excellent protection of concrete in aggressive environments
- CE marked in accordance with EN 1504 parts 2 and 3
- Impervious to liquids but permeable to water vapour
- Excellent bond to green or hardened concrete whether damp or dry
- Fast overcoating of Sika[®] resin based finish products
- Ideal preparation for smooth surface finishes
- For internal or external use
- Contains no solvents
- Can be applied by hand or mechanically

APPROVALS / STANDARDS

- ITT reports(*) for EN 1504-2, Ref. 09/343-946, dated May 6th, 2009 and EN 1504-3 Ref. 09/300-964 dated May 4th, 2009 by Applus Laboratory, Barcelona, Spain. (*confirm with producing company)
- Qualification tests in accordance with Swiss Standard SIA 162/5, Ref. A-29'212-1E, dated September 26th, 2005 by LPM AG, Beinwil am See, Switzerland
- Surface protection system for concrete, method coating, according to EN 1504-2:2004, provided with the CE marking
- Structural and non structural repair product for concrete according to EN 1504-3:2005, provided with the CE marking

PRODUCT INFORMATION

Chemical Base	Epoxy modified cementitious mortar.		
Packaging	Pre-dosed 21 kg sets.		
	Part A	1.14 kg plastic container	
	Part B	2.86 kg plastic container	
	Part C	17 kg ready to mix units	
Appearance / Colour	Part A-resin	white liquid	
	Part B - hardener	transparent yellow liquid	
	Part C - filler	Aggregate powder	
	Finish Colour	Matt grey	
Shelf Life	Part A, part B	12 months	
	Part C	* confirm with producing company	
Storage Conditions	The product must be 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		
Density	Part A	~1.05 kg/l	(EN 1015-6)
	Part B	~1.03 kg/l	
	Mixed resin	~1.30 kg/l	
	Mixed A+B+C:	~2.00 kg/l	
	all density values at +20 °C		

TECHNICAL INFORMATION

Compressive Strength	> 45 N/mm ² (28 days / +20 °C / 50 % r.h) (Class R4 as per EN 1504-3)	(EN196-1)
Tensile Strength in Flexure	> 5 N/mm ² (28 days / +20 °C / 50 % r.h)	(EN196-1)
Coefficient of Thermal Expansion	~13 × 10 ⁻⁶ 1/K	
Reaction to Fire	Class A2(fl) S1	(EN 13501-1)
Freeze Thaw De-Icing Salt Resistance	Resistance Factor WFT-99 % (High)	(EN196-1)
Sulfate Resistance	High Sulphate Resistance	(ASTM C 1012)
Diffusion resistance to carbon dioxide	μCO ₂ ~5400	(EN 1062-6)
Service Temperature	-30 °C min. / +80 °C max. for continuous exposure.	

SYSTEM INFORMATION

System Structure

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

Priming as 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
Render	Sikagard®-720 EpoCem®
Top coating	can be left un-coated or suitable product from the Sikafloor® and Sikagard® range can be used as soon as the surface humidity of Sikagard®-720 EpoCem® has reached 4%

APPLICATION INFORMATION

Mixing Ratio

Part A : part B : part C - packaging size: 1.14 : 2.86 : 17 kg
Mixing ratio: 1 : 2.5 : 14 - 15 (by weight)

Consumption

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.

Layer Thickness

Min.: 0.5 mm / Max.: 3 mm

Isolated and confined small areas (< 0.01 m²) up to 5 mm

Ambient Air Temperature

+8 °C min. / +30 °C max.

Substrate Temperature

+8°C min. / +30°C max.

Pot Life

Temperature

+10 °C

+20 °C

+30 °C

Time

~80 minutes

~40 minutes

~20 minutes

21 kg unit

Waiting Time / Overcoating

Once Sikagard®-720 EpoCem® is tack free it is possible to apply vapour permeable seal coats.

For the application of vapour tight coatings on Sikagard®-720 EpoCem®, allow the surface moisture to fall below 4 %, not earlier than:

Temperature

+10 °C

+20 °C

+30 °C

Time

~60 minutes

~15 minutes

~8 minutes

Curing Treatment

Temperature

+10 °C

+20 °C

+30 °C

Full cure

~14 days

~7 days

~4 days

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

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

The concrete substrate must be sound and of suffi-

cient 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.

If in doubt, apply a test area first.

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.

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

MIXING

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, with no lumps.

Mix only full units of A+B+C components. Do not mix smaller amounts. Do not add water.

Mixing Tools

Mix using a slow speed electric mixer (300 - 400 rpm) with helical paddle or other suitable equipment. For mixing 2–3 bags at once, single or counter rotating double mortar (basket type) and forced action (pan type) mixers are also suitable. Free fall mixers must not be used.

APPLICATION

Hand application:

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

Mechanical Application:

Placement on to the surface can also be done using a hopper gun or wet spray technique. For example an Aliva Hopper gun, a Putzmeister S-5 or a Graco T-Max 405. Subsequent finishing by hand is required.

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.

Note:

Sikagard®-720 EpoCem® 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/render surface.

CLEANING OF TOOLS

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

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.
- The TMB effect in EpoCem® is limited in time, without additional preparation.
- Always verify the surface moisture content if more than 5–7 days have passed since application.

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.

LOCAL RESTRICTIONS

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

ECOLOGY

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.

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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