Construction

Sikagard®-720 EpoCem® HC

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

Product Description

Sikagard®-720 EpoCem® HC 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

Characteristics / Advantages

- Better chemical resistance than a PCC mortar
- Excellent protection of concrete in aggressive environments
- 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

Tests

Approval / Standards

- Co_2 permeability / ref. MIS 157/13/R 1570 (A) (AMD) according to EN 7062-6
- Bond strength by pull off test (PULL 009/13/R 7560)

Product Data

Form

Appearance /Colours

Part A - resin:	white liquid
Part B - hardener:	transparent yellow liquid
Part C - filler:	Aggregate powder
Finish Colour:	Matt grey

Packaging

Pre-dosed 21 kg sets.

Part A:	1.14 kg plastic container
Part B:	2.86 kg plastic container
Part C:	17.0 kg plastic or aluminium lined double paper bags

Storage

Storage Conditions/ Shelf-Life	Part A, part B: 12 months Part C: * confirm with producing company 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/ Typical Results

Chemical Base	Epoxy modified cementitious mortar.	
Density	Mixed A+B+C: ~ 2.00 kg/l (at +20°C)	(EN 1015-6)
Layer Thickness	Min.: 0.5 mm / Max.: 3 mm Isolated and confined small areas (< 0.01 m^2) up to 5 mm	
Coefficient of Carbon Dioxide Diffusion	µ$C0_2$ ≈ 10,000 Carbonation resistance for 1 mm thickness: R ≈ approx. 10 m	(EN 1062-6)
Service Temperature	-30°C to +80°C for continuous exposure.	

Mechanical / Physical Properties

Compressive Strength	≈40 N/mm^2 after 28 days	(EN 12190)
Flexural Strength	≈5 N/mm^2 after 28 days	(EN 12190)
Bond Strength by pull off	≈3 MPa	(EN 1542)

Resistance

Chemical Resistance	Sikagard®-720® EpoCem® HC 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 from the Sikafloor® and Sikagard® range. For occasional exposure or spillages, consult your local technical department.

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 Render: Sikagard®-720 EpoCem® HC Top coating: nothing or suitable product from the Sikafloor® and Sikagard® range.

Application Details

Consumption / Dosage	*Primer:* Water dependent on substrate absorbency. *Screed / Mortar / Render:* ~ 2.0 kg/m^2/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/mm^2) with a minimum pull off strength of 1.5 N/mm^2. 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® , Sika MonoTop® 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 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.

Application instructions

Mixing	Part A : part B : part C - packaging size: 1.14 : 2.86 : 17 kg Mixing ratio: 1 : 2.5 : 14 - 15 (by weight)
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, 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 Method / Tools	*Hand application* Place mixed Sikagard®-720 EpoCem® HC 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. *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® HC must be protected from rain for at least 24 hours. Once Sikagard®-720 EpoCem® HC 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.

Waiting Time / Overcoating

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

For the application of vapour tight coatings on Sikagard®-720 EpoCem® HC, 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® HC in a confined space, to remove excess moisture.

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

For external applications, apply primer and Sikagard®-720 EpoCem® HC 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® HC. 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® HC 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® HC 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.

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.

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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 shall 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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