

TECHNICAL DATA SHEET

BETONPROTEKT RP

Fibre reinforced repair mortar EN 1504-3: PCC mortar for concrete restoration, class R2 (R4 conditionally)



PRODUCT DESCRIPTION

One-component, micro-reinforced, super plasticized, sulphate-resistant PCC repair mortar for horizontal and panelled surfaces.

Field of use

For restoring and levelling horizontal concrete surfaces. Layer thickness (one application) min. 10 to max. 40 mm.

Product properties

- Excellent adhesion to the substrate
- Plastic consistency with low w/c factor
- Limited shrinkage
- High bending strengths and compressive strengths
- High sulphate-resistance

PRODUCT DATA

Basic information

Appearance	Grey powder
Packing	30 kg in bag (plastificated) / 1260 kg (42 x 30 kg) on palette
Storage and expiration date	12 months from date of production if stored properly in undamaged original sealed packaging in dry and cool conditions. Date of production is printed on packaging.

Technical data

Type of product	Cementitious polymer modified mortar
pH	11-13,5 at 20°C

SYSTEM DATA

System composition

BETONPROTEKT K2	KEMACRYL, KEMALATEX	BETONPROTEKT RT	BETONPROTEKT RP	BETONPROTEKT F
Rebar protection and the bonding layer	Polymer dispersion for the bonding bridge (bond old-new)	Repair mortar for vertical and ceiling concrete surfaces	Repair mortar for horizontal concrete surfaces	Fine levelling compound for corrosion protection of concrete surfaces

Data for usage and consumption of products for concrete restoration and protection are given in technical data sheets.

INSTRUCTIONS FOR USE

Table 1: Characteristic of dry mixture BETONPROTEKT RP

Characteristic	Testing procedure	Unit	Requirement in accordance with EN 1504-3	Declare value
Colour and appearance	Visual	-	-	Grey powder
Maximum grain size	-	mm	-	3,15
Recommended thickness of one layer: - minimum - maximum	-	mm	-	10 40
Content of chloride ions	EN 1015-17	%	≤ 0,05	≤ 0,05

Table 2: Characteristic of fresh mortar BETONPROTEKT RP

Characteristic	Testing procedure	Unit	Requirement in accordance with EN 1504-3	Declare value
Mixing water	-	l	-	3,3-4,2 per 25 kg
Usage time	-	min	-	approx. 30-60 depend on water quantity and temperature
Temperature by application of mortar, substrate and air	-	°C	-	+5 to +30 Optimal: +15 to +25

Table 3: Characteristic of hardened mortar BETONPROTEKT RP

Characteristic	Testing procedure	Unit	Class	Requirement in accordance with EN 1504-3	Declare value
Compressive strength: - 1 day - 7 days -28 days	EN 12190	MPa	R4	- - > 45	> 15 > 35 > 45
Density	EN 12190	kg/m ³	-	-	2200 ± 5%
Bond strength after 28 days	EN 1542	MPa	R4	> 2,0	> 2,0
Resistance to carbonation	EN 13295	mm	R4	d _k < ref.concrete = 2,5	d _k < ref.concrete
Modulus of elasticity 28 days	EN 13412	GPa	R4	> 20	> 20
Capillary absorption	EN 13057	kg/(m ² .h ^{0,5})	R4	< 0,5	< 0,5
Adhesion after thermal compatibility - 50 cycles. Thermal cycling with de-icing salt impact	EN 13057	MPa	R4	> 2	> 2
Blocked shrinkage and expansion	EN 12617-4	MPa	R4	> 2	> 2
Reaction to fire		class	R4	A1	A1

Consumption

from 18-20 kg/m² for each cm of the layer

Base

Surface has to be solid and clean, free of any kind of dirt, greasy spots and free particles.

Base preparation

Weak bonded particles of concrete, carbonized and with chlorides contaminated concrete must be removed to achieve sound concrete with sandblasting, washing with water under high pressure, using a wire brush or light hammer. Concrete should be removed in some bigger range then damage reinforcing is visible. Rusty reinforcing rods should be cleaned to the shine grade St2 and protected with two coats of cement-based steel reinforcement primer and Bonding Bridge BETONPROTEKT K2.

When reinforcing rods are rusted more than 30%, they should be replaced with new ones. Damaged concrete behind reinforcing rods should be completely removed in depth approx. 2 cm. If necessary concrete is additional reinforcing.

Bonding bridge:

On a well prepared and roughened substrate a bonding primer is generally not required. When a bonding primer is not required pre-wet the surface. The surface should not be allowed to dry before application of the concrete repair mortar. The surface should achieve a dark matt appearance without glistening and surface pores and pits should not contain water.

When a bonding primer/bridge is necessary apply polymer dispersion KEMACRYL, diluted with water 1:1 or BETONPROTEKT K2 – cementitious based steel reinforcement primer and bonding bridge. Repair mortar should always be applied "wet on wet".

Mix ratio

approx. 3,3-4,2 l of water per 25 kg of dry mixture

Mix time

Mix dry mixture with clean water into a homogenous mass of putty-like consistency without clods. The final consistency is determinate in accordance with surface where mortar will be applied with adding some water (max. 0,5 l). Mix only the amounts of BETONPROTEKT RP that can be applied in 45 minutes. Water must not be added to the mortar that is already in the binding phase.

Mix tool

Mix mortar in a clean container using suitable electrical mixer. Revolutions in a minute appoint on minimum.

Installation

Prior to the application of BETONPROTEKT RP concrete surface has to be properly prepared. Rusty reinforcing rods should be cleaned and protected with BETONPROTEKT K2 coating. Damaged surface has to be coated with bonding layer BETONPROTEKT K2 – Cement Based Bonding Bridge. Repair mortar BETONPROTEKT RP is applied fresh-on-fresh. BETONPROTEKT RP is applied to layer thickness approximately 4 cm in one application. For application onto bigger surfaces the usage of KEMA NONSHRINK is recommended to achieve better shrinkage compensation.

Tool

Choose a trowel.

Cleaning of tool

Clean tools immediately after the use before adhesive hardens. Hardened material on tools can only be removed mechanically.

Usage time

app. 45 minutes

LIMITATIONS

Base temperature

+5°C min./ +30°C max.

Air temperature +5°C min./ +30°C max.

Material temperature +5°C min./ +30°C max.

Warnings

- Times specified in the technical sheet were measured at the temperature of +23°C and relative air humidity of 50%. With higher temperatures prescribed time can be shortened while prolonged at lower temperatures.
- Use only recommended amount of water. Use only mixture from undamaged packaging. Do not overdo the layer thickness.
- Protect freshly installed material from freezing, rain and other weather conditions. The material should not be used at (surface, air, material) temperatures lower than +5°C.
- Avoid application in direct sun and/or strong wind and/or rain.
- Apply only to sound, prepared substrates.
- Do not add additional water during the surface finishing as this will cause discoloration and cracking.
- It is essential to cure the repair mortar immediately after application for a minimum of 3 days to ensure full cement hydration and to minimise cracking. Use polythene sheeting taped down at the edges or apply an antievaporation compound KEMACURE EKO.

Recommendation: Remains of the unhardened/unset material have to be removed in accordance with the legislation.

Data source: All technical data in this technical sheet was obtained by laboratory research. Actual data may differ due to different working conditions.

Local restrictions: Due to specific local regulations the installed product can differ from country to country. For exact instructions for use a country specific technical sheet should be obtained.

SAFETY DATA

Irritating. Contains cement. Irritating to eyes, skin and respiratory tract. Contact with skin may cause hypersensitivity. In case of eye contact wash thoroughly with water at once and consult a doctor. In case of skin contact flood with a lot of water. Keep away from the reach of children. More data on storage, handling and use of mixture can be found in the safety sheet which contains safety, toxicological and ecological data. Warnings on the original packaging should also be considered.

LEGAL BASE

Information and recommendations related to use of KEMA products are presented in good faith and believed to be correct. The later is based on our knowledge and experience with the products. Information is supplied upon the condition that products are stored and used according to the recommendations and the persons receiving the same will make their own determination as to its suitability for their purposes prior to use. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to Information or the product to which information refers. In no event will KEMA be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information or the product to which Information refers. Nothing contained herein is to be construed as a recommendation to the use any product, process, equipment or formulation in conflict with any patent, and KEMA makes no representation or warranty, expressed or implied that the use thereof will not infringe any patent. All orders fall under current sales and supply conditions. The user should always check the latest technical sheet available upon demand.