



Betofix R4

Fibre-reinforced PCC for static renovation of concrete structures

| Colour | Availability | |
|--------|---------------------|-----------|
| | Quantity per pallet | 36 |
| | Packaging unit | 25 kg |
| | Type of container | Paper bag |
| | Container code | 25 |
| | Art. no. | |
| grey | 1096 | ■ |

Application rate

Approx. 2.0 kg/m²/mm layer thickness, or approx. 2.0 kg/dm³



Range of use



- Repairing concrete structures with rough surfaces in areas subjected to static and dynamic loads
- Restoration of concrete structures, load-bearing, M3
- Repair of traffic structures in accordance with ZTV-ING
- Repair of hydraulic structures in accordance with ZTV-W

Property profile

- Combines corrosion protection, a bonding layer and coarse and fine mortar
- M3 mortar according to RiLi-SIB concrete guidelines and class R4 according to DIN EN 1504-3
- Can be sprayed and applied by hand
- Single-layered application thickness in cracks up to 80 mm
- Maximum grain size: 2 mm
- Reaction to fire: class A1
- Approved by the German Federal Highway Research Institute (BAST)
- Compressive strength after 28 days: ≥ 50 N/mm²
- Freeze/thaw-resistant
- High resistance to chloride penetration

Characteristic data of the product



| | |
|--|--|
| Water requirement | Approx. 10.8% corresponds to 2.7 l/25 kg |
| Exposure class assignment | Carbonation XC1, XC2, XC3, XC4 Chlorides without seawater XD1, XD2, XD3 Chlorides from seawater XS1, XS2, XS3 Frost attack with/without de-icing salt XF1, XF2, XF3, XF4 Chemical attack XA1, XA2* Wear load XM1, XM2 * Sulphate content of water (SO ₄ ²⁻) ≤ 1500 mg/l |
| Flexural tensile strength (28 days) | ≥ 8.0 N/mm ² |
| Reaction to fire | Class A1 |
| Chloride migration coefficient after 28 days | 28 days = 1.27 · 10 ⁻¹² m ² /s 90 days = 0.70 · 10 ⁻¹² m ² /s |
| Compressive strength | 1 day: ≥ 20 N/mm ² 7 days ≥ 45 N/mm ² 28 days ≥ 50 N/mm ² |
| Dynamic E-modulus | ≥ 25000 N/mm ² |
| Moisture class assignment | WO, WF, WA, WS |
| External surveillance | QDB, KIWA |
| Maximum grain size | 2 mm |
| Adhesion capacity (DIN EN 1542) (28 days) | ≥ 2.0 N/mm ² |

The values stated represent typical characteristic data of the product and are not to be understood as binding product specifications.

Certificates

- [Initial test according to DIN EN 1504-3](#)
- [AbP P 6446-A/11-376 Betofix PCC restoration system, Kiwa Polymer Institute](#)
- [Test report P 6446a Concrete renovation system, Kiwa Polymer Institute](#)
- [Test report P 6446 Concrete renovation system - M3 mortar - Kiwa Polymer Institute](#)
- [Certificate of compliance Reg. No. 11/6446-A376-415, Kiwa Polymer Institute](#)
- [Test report M 1629 Chloride penetration resistance, ibac RWTH Aachen](#)
- [EG-Zertifikat QDB Nr. 921-CPR-2042](#)
- [Test certificate K-2300/786/16 Classification of reaction to fire according to DIN EN 13501, MPA BS](#)

Additional information

- [BASt list concrete replacement systems \(PCC\)](#)
- [BAW list cement mortar/concrete with synthetic additive \(PCC\) and cement mortar](#)

Possible system products

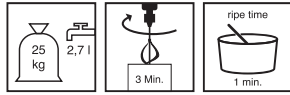
- [Betofix KHB \(1087\)](#)
- [Betofix Fill \(1008\)](#)

Preparation

- **Substrate requirements**
Clean, dust-free and capable of supporting a load.
- **Substrate preparation**
Expose all steel parts, derust to a degree of purity of SA 2½
Pre-wet the substrate so that it is slightly moist.



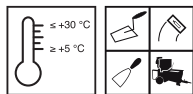
Production of the mixture



■ **Mixing**

Pour water into a clean container and add dry mortar.
 Mix thoroughly with a mixer for approx. 3 minutes until homogeneous.
 Allow to mature for approx. 1 minute.
 Then mix again for at least 1 minute until the proper consistency for working has been achieved.
 Add a little water if necessary.

Directions



■ **Conditions for use**

Temperature of the material, air and substrate: from min. +5 °C to max. +30 °C
 Low temperatures increase, while high temperatures decrease the working and setting time.

■ **Working time (+20 °C)**

Approx. 60 minutes

The pre-wet substrate must still be slightly absorbent.
 Use the product to apply a scratch coat.
 Dilute the product slightly before applying the product to hard-to-reach places in the form of contact sludge.
 Layer thickness, single-layered 5–25 mm
 Layer thickness, double-layered < 50 mm, with the second layer applied while the first is still wet
 Layer thickness, single-layered in cracks < 80 mm

Tips on use

If the concrete cover measures less than 10 mm after completing repair work, protect the concrete reinforcement against corrosion using Betofix KHB.
 Mixing by hand and the mixing of partial quantities are not permitted.
 Once it has hardened, mortar must not be made workable again by adding either water or more wet mortar.
 Protect wet mortar surfaces against frost, rain and drying out too quickly for at least 4 days.
 Hairline/shrinkage cracks are safe and are not cause for complaint as they do not impair the properties of the mortar.
 Please contact Remmers Technical Service (phone +49 5432 83-153) before applying with machine processing.

Notes

The mixing water must be of drinking water quality.
 May contain traces of pyrite (iron sulphide).
 Low chromate content in accordance with Directive 2003/53/EC.
 The characteristic data of the product were calculated under laboratory conditions at 20°C and 65% relative humidity.

Tools / Cleaning



Mixer, trowel, smoothing trowel
 Suitable machine technology

Clean tools with water while the material is still fresh.

Storage / Shelf life



If stored dry in closed containers, the product will keep for approximately 9 months.



Safety data / Regulations

For further information on the safety aspects of transporting, storing and handling the product and on disposal and environmental matters, please see the current Safety Data Sheet.

Disposal

Larger quantities of leftover product should be disposed of in the original containers in accordance with the applicable regulations. Completely empty, clean containers should be recycled. Do not dispose of together with household waste. Do not allow to enter the sewage system. Do not empty into drains.

Declaration of performance

➤ **Declaration of performance**

CE marking



Remmers GmbH

Bernhard-Remmers-Str. 13, D – 49624 Lönningen

09

GBI P 1-1

EN 1504-3: 2005

1096

PCC mortar for structural and non structural repair for concrete

| | |
|-------------------------------------|---|
| Compressive strength: | Class R4 |
| Chloride ion content: | 0.05 % |
| Adhesive bond: | ≥ 2.0 MPa |
| Restrained shrinkage/expansion: | ≥ 2.0 MPa |
| Carbonation resistance: | Passed |
| Elastic modulus: | ≥ 20 GPa |
| Thermal compatibility part 1 and 4: | ≥ 2.0 MPa |
| Capillary absorption: | ≤ 0.5 kg/(m ² h ^{0.5}) |
| Reaction to fire: | Class A1 |

Please note that the data and information given above have been calculated as guidelines in the laboratory and from real-life experience and are therefore not binding as a basic principle.

This information is therefore of a general nature only and describes our products and how they are used and worked with. In this respect, it must be borne in mind that the varied and diverse nature of the

prevailing working conditions, materials used and construction sites encountered means that not every individual case can be covered. In this respect, we therefore recommend either conducting tests or liaising with us in the event of any doubt. Unless we have provided express written assurance of the products' specific suitability or characteristics in respect of a contractually stipulated intended use, any technical application-related advice or instruction will never

be binding, even though it is provided to the best of our knowledge. In all other respects, our general terms and conditions of sale and delivery shall apply.

When a new version of this Technical Data Sheet is published, it shall replace the previous version.