

CONSTRUCTION

CarboCrackSeal H Plus

TWO-COMPONENT POLYURETHANE RESIN

CE identification according to DIN EN 1504-5: 0921-CPR-2168

DESCRIPTION

Slow reacting, highly flexible two-component polyurethane resin.

The resin mix penetrates the cracks to be sealed. Any water present is chiefly displaced due to the hydrophobic character of the resin, a smaller fraction produces foaming of the resin with a closed pore structure.

CarboCrackSeal H Plus, Component A comprises of polyetherester polyols and additives. CarboCrackSeal H Plus, Component B is a modified isocyanate.



APPLICATION AND USE

CarboCrackSeal H Plus is used in buildings and other civil engineering structures constructed from concrete, brickwork or natural stone.

CarboCrackSeal H Plus serves for grouting/sealing and elastic connection of fissures and cavities.

Applicable at ambient temperatures of between 5 °C and 30 °C.

ADVANTAGES

- Easily injected
- Wide range of grouting and sealing applications
- Elastic and extendable when cured

TECHNICAL DATA

The data below are laboratory data. They may vary in practice by thermal exchange between resin and concrete, the surface properties of the concrete, humidity, pressure and other factors.

MATERIAL DATA

| Parameter | Unit | Comp A | Comp B | Mixture A+B | Standard |
|--------------------|-------------------|-----------|-----------|-------------|-----------------|
| Density at 25 °C | kg/m ³ | 985 ± 15 | 1092 ± 15 | - | DIN 12791 |
| Colour | - | honey | brown | - | - |
| Viscosity at 25 °C | mPa*s | 285 ± 50 | 14 ± 3 | 150 ± 30 | DIN EN ISO 3219 |
| Viscosity at 15 °C | mPa*s | 550 ± 60 | 20 ± 5 | 170 ± 40 | DIN EN ISO 3219 |
| Viscosity at 6 °C | mPa*s | 995 ± 100 | 34 ± 7 | 290 ± 50 | DIN EN ISO 3219 |

REACTION DATA

| Mixing ratio A : B | 1 : 1 parts by volume | | | | |
|---|-----------------------|----------|-----------|----------|---------------|
| Starting temperature | Unit | 6 °C | 15 °C | 25 °C | Standard |
| Mix viscosity 5 min. after end of mixing | mPa*s | 290 ± 50 | 170 ± 40 | 150 ± 30 | MCT PV 10-329 |
| Viscosity of 1000 mPa*s 1 mm-crack (isotherm) after | min. | 55-95 | 50-85 | 55-95 | MCT PV 10-327 |
| Gel Time | h | 15 ±2.0 | 14,5 ±1.5 | 11 ±1.0 | MCT PV 10-311 |
| Foaming factor | - | ca. 1.0 | ca. 1.0 | ca. 1.0 | MCT PV 10-301 |

PROCESSING TIME

| Starting temperature | Unit | 5 °C | 18 °C | 23 °C | Standard |
|---|------|---------|---------|---------|---------------|
| Package processing time (1 kg-twin can) | min: | 30 - 40 | 25 - 35 | 17 - 27 | MCT PV 10-328 |

MECHANICAL DATA

| Parameter | Unit | Value | Standard |
|--------------------------------|---------|-------------|---------------------------------|
| Tensile strength | MPa | 0.58 ± 0.12 | DIN EN 1504-5 (EN ISO 527-1/-2) |
| Elongation at break | % | 192 ± 38 | DIN EN 1504-5 (EN ISO 527-1/-2) |
| E-module | MPa | 0.20 ± 0.04 | EN ISO 527-1/2 |
| Hardness Shore A after 28 days | Shore A | 55 ± 3 | ISO 7619-1 |

APPLICATION METHOD

Generally, the resin mix is injected via a borehole packer and a borehole into the fissure to be sealed, until resin matter is discharged by monitoring boreholes. Two different techniques may be used for CarboCrackSeal H Plus application:

- One-component processing

The resin components are mixed carefully in a volumetric 1 : 1 ratio and injected by single-component-pump CT ET I or HD 1.

Thereby the pot life has to be taken into account.

- Two-component processing

The resin components are pumped separately by a twin pump in a volumetric 1: 1 ratio. The components are mixed by a specific reusable static mixer prior to the injection into the borehole.

Use for it exclusively the electro-hydraulic powered four plunger pump CT-EL 5 II Art.-Nr. 2228. As static mixer are exclusively used the static mixer stainless steel combining tubes, Art.-Nr 30551, length 140 mm for the acceptance of 12 static grid mixers plastic, Art.-Nr. 30549 or the specific ZTV-ING static mixer, Art.-Nr. 13454.

The volumetric 1 : 1 ratio of the pump has to be checked prior to injection.

After more than 10 hours, the resin is solid; the final curing takes several days. The cured resin is elastic and extendable even in tabular adhesion.

Applicable at volume flows ≥ 0.3 l/min, ambient or rather building element temperatures between 5 °C and 30 °C as well as product temperatures > 15 °C.

SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals, see MSDS of CarboCrackSeal H Plus Component A and Component B.

In case of water intrusions which cannot be stopped by CarboCrackSeal H Plus, CarboStop U is injected until the water flow stops. Immediately afterwards, the injection is continued with CarboCrackSeal H Plus, using separate packer.

PACKAGING AND TRANSPORTATION

All forms of packing are approved to the danger goods regulation road, railway, domestic shipping.

The components can be delivered in 1/5/20/26/200/1000 l units and combi units.

Other packaging units are available on request. Details are shown in the offer.

STORAGE AND SHELF LIFE

At least six months after delivery for dry storage between 10 °C and 30 °C. When this time is exceeded, we recommend having the material checked by Minova for compliance with specification. The local legislation on storage has to be observed.

DISPOSAL

Follow local regulations.

APPROVALS AND CERTIFICATES

Adapted for injection hoses embedded in concrete structures according to the criteria to DIN EN 1504-5: U(D1) W(1)(1/2/3/4)(5/30)

1. Certificate of conformity of the factory production control No. 0921-CPR-2168 (QDB, 2015)
2. Determination of identifying characteristics and performance P 2.1/07-431/2 (MFPA Leipzig, 2008)
3. Chemically toxicological analysis A-168400-08-WR (Hygiene Institut, 2008)
4. Assessment of the Effects of Construction Products on Soil and Ground Water C-184148-09-Bs (Column Test to the DiBt-Working sheet, Hygiene-Institut 2009)
5. EC Declaration of Conformity (Essen, 2009)
6. Certificate of Conformity reg. no. ZERT 124 | 15/ 759 (QDB, 2015)
7. Eluate fish toxicity 181637-09WR (18.08.2009)
8. Effect of the polyurethane CarboCrackSeal H Plus on polymeric deposits (Uni Essen, 2010)
9. General construction survey test certificate in combination with injection

- hose CEM-11: P-5000/6384 MPA-BS (MPA Braunschweig, 2011)
10. Certificate according to KTW-guidelines (LADR GmbH, 2011)
 11. General construction survey test certificate with "MASTERTUBE – Verpressschlauch": P-SAC 02 / 5.1 / 10 - 369 (MFPA Leipzig, 2011)
 12. Test report glas transition temperature (ibac, Aachen 2011)
 13. Determination of injection capacity according DIN EN 1771 UB 1.4/11-041 (MFPA Leipzig, 2012)

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ADDITIONAL DOCUMENTATION

- Operating instructions on proper use of Minova injection resins
- MSDS CarboCrackSeal H Plus

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