

CONSTRUCTION / ENERGY

CarboPur WT

TWO-COMPONENT POLYURETHANE INJECTION RESIN

DESCRIPTION

CarboPur WT is an fast reacting two-component injection resin, CFC-free and halogen-free, for sealing against strong water ingress.

CarboPur WT, Component A is a mixture of various polyols and additives. CarboPur, Component B is a polyisocyanate.



APPLICATION AND USE

- Sealing against water under hydrostatic pressure from strata, dams or shaft walls, also against salt-water
- Repair of wet shafts, tunnels, channels and walls
- Sealing of underwater concrete sheet pilings and diaphragm walls

ADVANTAGES

- Instantly thickening after mixing
- Therefore, especially suited against water inflow from wide cracks
- Very fast setting and immediate sealing effect
- Constituent of the Minova sealing philosophy, compatible with CarboPur WFA and WF
- Excellent report in groundwater hygiene
- CarboPur WT is inert from a micro biological point of view
- CarboPur WT fulfils the fire examination according to DIN 4102-1 – Building material class B2 (normally inflammable)

TECHNICAL DATA

The data below are laboratory data only. They may vary in practice due to thermal exchange between resin and strata, surface properties of the stone, humidity, pressure and other factors.

MATERIAL DATA

Parameter	Unit	Comp A	Comp B	Standard
Density at 25 °C	kg/m ³	1030 ± 15	1230 ± 30	DIN 12791-1
Colour	-	honey	dark brown	-
Flash point	°C	> 160	> 150	DIN 53213
Viscosity at 25 °C	mPa*s	310 ± 60	200 ± 50	ISO 3219
Viscosity at 15 °C	mPa*s	1000 ± 80	550 ± 100	ISO 3219

REACTION DATA

Starting temperature	Mix viscosity after 5 s	End of foaming / setting time	Foaming factor*	Test Method
15 °C	<100000 mPa*s	1 min ± 20 s	1.1 – 2.0	MCT PV 10-301
25 °C	>100000 mPa*s	35 s ± 10 s	1.1 – 2.0	MCT PV 10-301

* Note: depending on the penetration of water

MECHANICAL DATA

Parameter	Value	Standard	Reference
Compressive Strength	70 ± 10 MPa	ISO 604	Internal measurement
Adhesive Strength (dry, 30 °C, 80% rel. hum.)	5 ± 1 MPa after 5 h	DMT-Method	3
Shore Hardness	D80 ± 5	ISO 7619-1	Internal measurement

APPLICATION METHOD

The two components are pumped by a dual component pump at the volumetric ratio 1 : 1; they are mixed thoroughly in a static mixer unit prior to injection into strata via a packer installed in a previously drilled borehole.

After mixing of both components the viscosity increases sharply to a high value so that the injected resin can no longer be disintegrated and flushed out by flowing water.

After mixing, the resin thickens immediately to a paste-like consistency. The mixed resin penetrates the structure to be sealed. The major part of water in there is displaced due to the hydrophobicity and the viscosity of the resin. Traces of water make the resin foam.

In contact with water, the resin then foams up slightly. So, even water inflow from major cracks can be sealed easily. For closing small cracks and for sealing residual water ingress we recommend the use of CarboPur WF or WFA. Those three resins can be combined with each other. For detailed instructions on use, consult the brochure ‘Operating instructions on proper use of Minova injection resins’.

According to its contact with water, the resin foams up more or less. Thus the mechanical properties vary a lot. The cured resin is resistant against many acids, alkali and salt brines as well as organic solvents (if in doubt consult nearest Minova representative).

Proper application provided, there are no objections against the use of CarboPur WT, as a sealing material in regards of groundwater. Even when injected into wet sand, only traces of organic mater can be detected in test water, so that CarboPur WT is applicable also in vicinity of thermal water springs. These results are confirmed by site measurements.

It has to be assured that the product temperature is between 15° – 30 C before processing and during application.

When the material is warmed up, local overheating, e. g. at the container wall, must be avoided.

SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals, see MSDS CarboPur WT component A and CarboPur component B.

If the product is strong cooled down (< 0 °C) or at short notice lower temperatures (< -10 °C), it should be warmed up before application to the recommended processing temperature.

PACKAGING AND TRANSPORTATION

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

The components can be delivered in 20/26/200/1000 l units.

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

STORAGE AND SHELF LIFE

At least six months from date of delivery when stored in a dry place 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 needs to be considered.

DISPOSAL

Follow local regulations.

APPROVALS AND CERTIFICATES

1. Test report groundwater from excavation site Schering, Berlin (Inst Dr. E. Kirchhoff, Berlin, 1993)
2. Expertise on the reproduction of microorganisms (Hygiene-Institut Gelsenkirchen, 1999)
3. Report on Adhesive Strength (DMT MinTech, Essen, 1999)

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ADDITIONAL DOCUMENTATION

- Operating instructions on proper use of Minova injection resins
- MSDS CarboPur WT component A and CarboPur component B

LIST OF REPRESENTATIVES

- AUSTRIA: Minova MAI GmbH
- BELGIUM / FRANCE: Minova France C/O Orica Belgium SA
- CZECH REPUBLIC: Minova Bohemia s.r.o.
- GERMANY: Minova CarboTech GmbH
- ITALY: Minova CarboTech GmbH
- KAZAKHSTAN: Minova Kazakhstan JV LLP
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