

MINOVA

CARBOPUR WS

TWO-COMPONENT POLYURETHANE
INJECTION RESIN

DESCRIPTION

Fast reacting two-component injection resin according, CFC-free and halogen-free, for sealing and consolidation in dry, water-bearing strata and against water under pressure.

CarboPur WS consists of a component A and a Component B. CarboPur WS component A is a mixture of various polyols and additives, which reacts with the CarboPur component B to a tough-rigid polyurethane resin. CarboPur Component B is a polyisocyanate.

APPLICATIONS AND USES

- > Consolidation in dry, wet and water-bearing strata
- > Sealing against water under hydrostatic pressure from strata, dams or shaft walls, also against salt-water
- > Repair of wet shafts, tunnels, channels and walls

ADVANTAGES

- > CarboPur WS is characterized by a very fast setting / immediate sealing effect
- > Stabilizing effect
- > Due to the volume ratio 1:1 a simple and safe processing is possible
- > Due to the inertia of the material and the absence of toxic reactions, there are no objections against CarboPur WS coming in contact with ground or surface water
- > The reaction time can be variable adjusted by the addition of the catalyst CarboAdd WX
- > CarboPur WS fulfills fire test to DIN 4102-1 construction material class B2 (normal flammability)

TECHNICAL DATA

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

TECHNICAL PROPERTIES

PARAMETER	UNIT	COMP A	COMP B	STANDARD
Density at 25 °C	kg/m ³	1010 ± 30	1230 ± 30	DIN 12791-1
Colour	-	honey	dark brown	-
Flash Point	°C	> 150	> 150	DIN 53213
Viscosity at 30°C	mPa*s	220 ± 50	160 ± 50	ISO 3219
Viscosity at 25°C	mPa*s	290 ± 50	200 ± 50	ISO 3219
Viscosity at 15°C	mPa*s	650 ± 150	550 ± 150	ISO 3219

MECHANICAL DATA

PARAMETER	VALUE	STANDARD
Adhesive strength (dry surface, 30 °C, 80 % rel. F.)	1,0 MPa after 30'	DMT-Method
Flexural strength 2 % deformation (unfoamed) (2d/RT)	> 25 MPa	ISO 178
Shore hardness D (2d/RT)	> 75	ISO 7619-1
Compression strength 10 % deformation (2d/RT)	> 50 MPA	ISO 604

REACTION DATA

STARTING TEMPERATURE	END OF FOAMING / SETTING TIME	FOAMING FACTOR	TEST METHOD
WITHOUT CONTACT TO WATER			
15 °C	1 min 50 s ± 20 s	< 1,5	MCT PV 10-301
25 °C	50 s ± 15 s	< 1,3	MCT PV 10-301
30 °C	40 s ± 10 s	< 1,3	MCT PV 10-301

REACTION DATA WITH CONTACT OF WATER

STARTING TEMPERATURE TEST METHOD	START OF FOAMING	END OF FOAMING / SETTING TIME	FOAMING FACTOR	TEST METHOD
WITH CONTACT TO WATER (1% RELATIVE TO MIX)				
15 °C	35 s ± 150 s	1 min 35 s ± 30 s	5 ± 2	MCT PV 10-301
25 °C	20 s ± 15 s	1 min ± 20 s	6 ± 2	MCT PV 10-301
WITH CONTACT TO WATER (2% RELATIVE TO MIX)				
15 °C	35 s ± 15 s	1 min 25 s ± 20 s	7 ± 2	MCT PV 10-301
25 °C	20 s ± 15 s	1 min ± 20 s	9 ± 2	MCT PV 10-301

APPLICATION METHOD

With strong outflow of water or in case of cold water the use of CarboPur WS is recommended

The two components CarboPur WS component A and CarboPur component B 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.

In contact with water, the resin foams up. The following reaction mix displaces then the preceding one. Since the mixture does not meet any more water, it hardens without foaming to form a pore-free material. Thus, a water-tight shell is foamed which, in turn, is surrounded by a zone consolidated by foamed-up polyurethane. This means that only one application cycle with one material is necessary for arriving at permanent sealing and consolidation.

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 of CarboPur WS 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 has to be considered.

DISPOSAL

Follow local regulations.

MANUFACTURER

Minova USA Inc

An ISO 9001:2015

Quality Management Certified Company
Certificate No. FM 686583

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