

CONSTRUCTION

CarboStop W - CarboAdd X

WATER-REACTIVE SINGLE-COMPONENT RESIN

DESCRIPTION

CarboStop W is a water-reactive single-component resin. CarboStop W is CFC-free and free of phthalate plasticisers.

CarboStop W consists of modified polyisocyanates with softeners and additives. The CarboAdd X product is a catalyst blend.

CarboStop W cures by reaction with ambient water yielding a polyurethane/polyurea foam. The expansion rate of the foam depends in the first place on the backpressure effected by the propagation of the resin into the structure to be sealed, i. e. wide cracks/gravel result in a high foaming factor, narrow cracks/fine sand in a low expansion rate and high strength.

Cured CarboStop W does not shrink nor swell with water.

APPLICATION AND USE

- Stopping of water ingress, also seawater, in cracks
- Consolidation of soil
- Deep injection
- and more special applications

Applicable at temperatures between 0 °C and 50 °C.

ADVANTAGES

- Free of CFC and phthalate plasticisers
- Ready for use without mixing
- Suitable for deep injection
- Compatible with seawater



TECHNICAL DATA

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

MATERIAL DATA

Parameter	Unit	CarboStop W	Resin Mix 10 : 1	CarboAdd X	Standard
Density at 25 °C	kg/m ³	1140 ± 30	1120 ± 30	960 ± 10	DIN 12791-1
Colour	-	brown	-	yellowish	-
Flash point	°C	> 100	-	105 ± 5	DIN 53213
pH-value	-	n. a.	-	9.9 ± 0.5	DIN 19268
Viscosity at 5 °C	mPa*s	1200 ± 200	650 ± 100	-	DIN EN ISO 3219
Viscosity at 10 °C	mPa*s	800 ± 150	425 ± 90	-	DIN EN ISO 3219
Viscosity at 15 °C	mPa*s	500 ± 100	300 ± 80	-	DIN EN ISO 3219
Viscosity at 25 °C	mPa*s	250 ± 50	140 ± 40	4 ± 2	DIN EN ISO 3219

REACTION DATA

Initial temperature	5 °C	10 °C	15 °C	25 °C
Reaction times* measured with 10 % CarboAdd X				
Start of foaming	11 s ± 2 s	10 s ± 2 s	09 s ± 2 s	08 s ± 2 s
End of foaming	55 s ± 10 s	45 s ± 10 s	40 s ± 10 s	35 s ± 10 s
Foaming factor**	35 – 45	35 – 45	35 – 45	35 – 45
Reaction times* measured with 15 % CarboAdd X				
Start of foaming	10 s ± 2 s	09 s ± 2 s	08 s ± 2 s	07 s ± 2 s
End of foaming	40 s ± 10 s	35 s ± 10 s	30 s ± 10 s	25 s ± 10 s
Foaming factor**	30 – 40	30 – 40	30 – 40	30 – 40

* all measurements regarding MCT PV10-305

** free rise

Note 1: the reaction is affected by addition of 10 % water to the freshly prepared blend

MECHANICAL DATA

Parameter	Unit	CarboStop W	CarboAdd X	Standard
Grain Size Distribution	mm	0.063 – 0.2	0.2 – 0.6	
Pore Volume	%	43	38	
Resin Demand	kg/m ³ Sand	127 ± 10	93 ± 10	
Compressive strength, 7 d	MPa	33 ± 3	20 ± 2	DIN 53421
Deformation at break, 7 d	%	5 ± 1	5 ± 1	

APPLICATION METHOD

Prior to application, CarboAdd X is added to CarboStop W to increase its reactivity. The reaction mix thus obtained maintains its state for at least 8 hours without significant viscosity increase. After mixing with CarboAdd X, a skin may be formed on the surface of the liquid by reaction with the humidity contained in the air; but this does not affect the pumping operation.

CarboStop W/CarboAdd X products are injected as a single component via packers into the water-bearing zones using manual or motor-driven pumps. When in contact with water, the reaction mix foams up strongly and hardens. If the zone to be sealed contains insufficient water, a full hardening of the CarboStop W mass can be achieved by preliminary or subsequent water injection.

In contrast to the two-component systems, CarboStop W will not harden in the injection pipe for hours since contact with the water contained in the ground is necessary for hardening.

Immediately after ending the injection work flush the pump with CarboSolv D, in order to prevent clogging. For standstill periods of more than one day, fill the pump with CarboSolv S afterwards.

For the consolidation of soil CarboStop W is used without CarboAdd X it is injected via sleeve pipes (tube à manchette) or other injection pipes into natural moist or wet sand. The maximum radius of injection is approx. 30 cm; with a bigger radius the core is left uncured. The injection pressure should be no greater than the overburden pressure in order to avoid fracturing of the ground.

It needs 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 of the resin or accelerator canisters must be avoided by all means.

SAFETY INSTRUCTIONS AND LIMITATIONS

Observe the usual precautionary measures for handling chemicals, see MSDS CarboStop W and CarboAdd.

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. CarboAddX is delivered in 5/10 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 observed.

DISPOSAL

Follow local regulations.

APPROVALS AND CERTIFICATES

1. Hygiene assessment with respect to ground water risks (Hygiene-Institut, Gelsenkirchen, 1999)
2. Expertise on compatibility with construction materials (GHS, Kassel, 1990)

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ADDITIONAL DOCUMENTATION

- Operating instructions on proper use of Minova injection resins
- MSDS CarboStop W
- MSDS CarboAdd X

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