

## CONSTRUCTION

# CarboLith Flex

## DUAL-COMPONENT SILICATE RESIN

### DESCRIPTION

CarboLith Flex is a non-expanding, elasticized dual-component resin having good adhesion even on moist surfaces.

CarboLith Flex, Component A, is a special sodium silicate with additives. CarboLith Flex, Component B, is a modified polyisocyanate.

The curing of Component A results in a silicate; simultaneously a solid polyisocyanurate/polyurea is formed from Component B. The mixture of these two components creates a tough, elastic, solid silicate resin (organic-mineral resin).



### APPLICATION AND USE

Suitable for:

- Stabilisation of fragile zones
- Filling of smaller cavities, for example boreholes
- Other specialised applications

### ADVANTAGES

- Compared to the silicate resins of the first generation, CarboLith Flex is flexible and, under the stress of strata movement, capable of dissipating deformation energy
- Achieves its final strength much faster than other resins, even when applied in thin layers
- Just a few minutes after application, it already exceeds an adhesive strength of 4 N/mm<sup>2</sup>
- Excellent resistance against chemicals
- Examined for groundwater- and drinking water-hygiene compatibility
- Resistant against acids, alkali, brines and many solvents (if in doubt please contact Minova)

### TECHNICAL DATA

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

### MATERIAL DATA

Parameter	Unit	Component A	Component B	Standard
Density at 25° C	kg/m <sup>3</sup>	1460 ± 20	1130 ± 20	DIN 12791-1
Colour	-	colourless, clear	black brown	-
Flash point	°C	-	> 200	DIN 53213
Viscosity at 25° C	mPa*s	260 ± 40	130 ± 30	DIN EN ISO 3219

**REACTION DATA**

Initial temperature	0 °C	5 °C	10 °C	15 °C	25 °C	40 °C	Standard
Flow time					2 min 00 s ± 30		MCT-PV 10-304
Setting time	8 min ± 1 min	7 min ± 1 min	5 min 40 s ± 1 min	min 50 s ± 45 s	3 min 45 s ± 35 s	2 min 00 s ± 30 s	MCT-PV 10-304
Foaming factor	1						MCT-PV 10-304
Critical time* at 30 °C	-	-	-	-	< 15 min	-	DIN EN ISO 178

\*Critical time: time after which the bond strength in the three-point bending attempt exceeds 1 MPa

**MECHANICAL DATA**

Parameter	Unit	15 min	1 d	7 d	28 d	Standard
Uniaxial compressive strength	MPa	-	30	-	-	DIN 53421
Flexural strength	MPa	-	17	-	-	DIN 53452
Bond strength (3-mm-crack)	MPa	4.3	3.7	4.5	4.7	MCT PV 10-009
Modulus of Elasticity	MPa	-	240	-	-	DIN EN ISO 604
Density	kg/m <sup>3</sup>	-	1200 - 1300	-	-	MCT-PV 10-303

**APPLICATION METHOD**

The two components are pumped by a dual component pump at the volumetric ratio of 1 : 1, they are mixed thoroughly in a static mixer unit prior to injection into the strata via a packer installed in a previously drilled borehole. The viscosity of the liquid mixture increases continuously until it will no longer flow (solidification point). At this point it quickly sets, without any foam expansion.

Once the components have been thoroughly mixed, the viscous emulsion that results is

immiscible with water and does not absorb any water (e. g. from the surrounding soil or rock strata). Due to its density, it tends to sink in water.

For detailed instructions on use, consult the brochure „Operating instructions on proper use of Minova injection resins“.

For cleaning the B-component side please use oil (free of water). For cleaning the A-component side take water with small amount of tenside (i. e. simple dish liquid). Before taking the pump in action again make sure that the water is removed from the hose.

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

**SAFETY INSTRUCTIONS AND LIMITATIONS**

Observe the usual precautionary measures for handling chemicals, see the MSDS of CarboLith Flex A- and B-component.

We recommend storing the products prior to processing for at least 12 hours at temperatures of 15 °C to 30 °C to achieve the recommended processing temperature of minimum 15 °C.

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.

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

**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 on mechanical properties (DMT, Essen)
2. Expertise on groundwater hygiene (Hygiene-Institut, Gelsenkirchen)
3. Resistance Tests (LPI Ingenieur-gesellschaft mbH, Bericht Nr. P 060109-Ga)

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## ADDITIONAL DOCUMENTATION

- MSDS of CarboLith Flex Component A
- MSDS of CarboLith Flex Component B

## LIST OF REPRESENTATIVES

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- KAZAKHSTAN: Minova Kazakhstan LLP
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