MINOVA

MINING / CONSTRUCTION

GEOFLEX

DUAL-COMPONENT SILICATE-ISOCYANATE RESIN

DESCRIPTION

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

GEOFLEX is flexible and, under the stress of strata movement, is capable of dissipating deformation energy.

GEOFLEX Component A is a special sodium silicate with additives. GEOFLEX 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

For application in cracks of more than 0.25 mm width.

Suitable for

- Grouting coal and adjacent strata
- Stabilising fragile zones
- Grouting of injection bolts
- Renovation of old drifts
- Other specialised applications

Applicable at ambient temperatures between 5 °C and 40 °C

ADVANTAGES

- Final strength after 15 minutes
- Bond strength > 4 N/mm²
- Non-foaming
- Elastic
- Achieves final strength much faster than other resins, even when applied in thin layers
- Just a few minutes after application, it already exceeds a bond strength of 1 N/mm² and is therefore classified as “immediately load bearing”
- Cured GEOFLEX is resistant against acids, alkali, brines and many solvents[4]

TECHNICAL DATA

The technical data below is as recorded under laboratory conditions. In practice variations may be observed 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^3	1460 ± 20	1130 ± 20	DIN 12 791
Colour	-	colourless, clear	brown	-
Viscosity at 25 °C	mPa*s	260 ± 40	130 ± 30	ISO 3219
Flash point	°C	-	> 170	DIN 53 213

REACTION DATA

Initial temperature	25 °C	40 °C	Standard
Flow time	2 min 00 s ± 30 s	1 min 03 s ± 20 s	MCT PV 10-304
Setting time	3 min 45 s ± 35 s	2 min 35 s ± 30 s	MCT PV 10-304
Foam expansion factor	1	1	MCT PV 10-304
Max. reaction temperature	98 °C	-	MCT PV 10-314
Shore hardness	D60	-	ISO 7619-1

MECHANICAL DATA

Parameter	15 min	1 day	7 days	28 days	Standard
Bond strength (3-mm-crack)	4.3 N/mm²	3.7 N/mm²	4.5 N/mm²	4.7 N/mm²	According to DIN EN 196 part 1
Deformation work (3-mm-crack)	560 Nmm	270 Nmm	300 Nmm	350 Nmm	According to DIN EN 196 part 1
Modulus of elasticity	-	-	250 N/mm²	-	DIN EN ISO 178

Wiborex bolts (32 mm Ø), which were grouted with GEOFLEX on 600 mm length, broke at 350 kN pull load 4 hours after grouting[3].

APPLICATION METHOD

The two components are pumped by a dual component pump at the volume ratio of 1: 1 and injected into a previously created hole through a hole lock with integrated mixer in the rock mass.

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 result 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 in particular before a change of the injection resins, consult the „Technical handbook for the safe use of injection resins in the mining sector “.

The regulations and references form the Approval of the District government Arnsberg are to be considered.

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, e. g. at the container wall, must be avoided by any means.

SAFETY INSTRUCTIONS AND LIMITATIONS

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

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 18/26/200/1000 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 respectively 18 months after production 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. **LOBA** Approval of the District Government of Arnsberg 62.12.22.67-7-4
2. Test report on mechanical properties (DMT, Essen, 1998)
3. Report on the sealing of Wiborex bolts (DMT, Essen, 2000)
4. Report on the storage in different media (CTF, 2001)
5. Resistance Tests (LPI Ingenieur-gesellschaft mbH, Bericht Nr. P 060109-Ga)

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ADDITIONAL DOCUMENTATION

- MSDS of GEOFLEX
- Instructions for Handling Injection Resins

CUSTOMER SERVICE

For additional support options available at your area, contact our local offices.

www.minovaglobal.com/emea-cis