

**CONSTRUCTION**

# GeoFoam

**TWO COMPONENT SILICATE RESIN SYSTEM**

**DESCRIPTION**

GeoFoam is a rapidly reacting, strongly expanding two component injection resin with flame protection, CFC-free.

GeoFoam is a silicate-based resin foam. Component A is a modified silicate, and component B is a modified isocyanate. After mixing in a volumetric ratio 1: 1 the resin starts foaming up within a few seconds.



**APPLICATION AND USE**

- Cavity filling
- Consolidation of soil
- Sealing
- Securing soil on the surface
- Water sealing

The product allows injection as well spraying techniques.

Applicable at ambient temperatures between 2 °C and 40 °C.

**ADVANTAGES**

- Allows application at lower temperatures
- Reaction temperature comparable lower than these of Polyurethane systems
- Fast reaction also against inflow of pressurised water

**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>	1455 ± 30	1220 ± 15	DIN 12791-1
Colour	-	brownish-turbid	brown	
Flash point	°C	n. a.	> 200	DIN 53213
Viscosity at 25 °C	mPa*s	260 ± 80	140 ± 15	ISO 3219

**REACTION DATA**

Initial temperature	5 °C	10 °C	20 °C	25 °C	Test procedure
<b>Start of foaming</b>	60 s ± 25 s	25 s ± 15 s	23 s ± 15 s	20 s ± 10 s	MCT PV 10-303
<b>End of foaming</b>	120 s ± 25 s	120 s ± 25 s	55 s ± 20 s	45 s ± 15 s	MCT PV 10-303
<b>Foaming factor</b>	5-12	15 - 30	15 - 30	15 - 30	MCT PV 10-303

**MECHANICAL DATA**

Parameter	Details	Test procedure (Standard)
<b>Compressive strength of materials reacted in "open cup" after 24 h, 23 °C; 50 % rel. humidity</b>	at foaming factor 10: 3.5 N/cm <sup>2</sup> at foaming factor 20: 2.2 N/cm <sup>2</sup>	DIN 4093
<b>Reaction emission</b>	TEP: 0.56 mg/m <sup>3</sup> MDI: < 0.001 mg/m <sup>3</sup> TCP: 0.005 mg/m <sup>3</sup>	Hygiene Institut A137320a-06-WR
<b>Foaming factor</b>	at product temperature from 10 °C: 7 - 13 20 °C: 15 - 25	MCT PV 10-303
<b>Reaction temperature</b>	after 1 min: 98 °C after 10 min: 97 °C after 20 min: 88 °C after 60 min: 52 °C	DIN 22100
<b>Fire class</b>	B2 E	DIN 4102 DIN EN 13501-1
<b>Smoke toxicity</b>	CO <sub>2</sub> : 0.006 kg/m <sup>3</sup> CO: 0.0003 kg/m <sup>3</sup> HCN: 0.00002 kg/m <sup>3</sup> HL4	DIN EN 45545-2
<b>Adhesion at 3 mm crack by a foaming factor of 3 - 4</b>	after 0.5 hour: 6.0 N/cm <sup>2</sup> after 48 hours: 10.0 N/cm <sup>2</sup>	DMT U2032MIBS-G
<b>Behavior in the groundwater</b>	pH 7.5 (after the injection) very low TOC-values	Hygiene Institut C-145193-06-Bs
<b>Solubility behavior (3 month) in:</b> Fresh water: Salt water: Acid solubility: Base solubility:	not soluble not soluble not soluble not soluble	LPI Ingenieurgesellschaft mbH P060502

**APPLICATION METHOD**

Before pumping stir both components thoroughly.

The 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 a short time, the resin mixture begins to foam, penetrates forward driven by the injection pressure into the rock and sticks not only in cracks but also in larger gaps, holes, permeable rough soil.

Recommended product temperature before use: 20 °C - 25 °C.

**SAFETY INSTRUCTIONS AND LIMITATIONS**

Observe the usual precautionary measures for handling chemicals, see MSDS.

Application of cold product (5 °C - 10 °C) can lead to delay in the reaction time, to a smaller foaming factor and increased occurrence of reactions steams.

**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. Frost can damage the A-Component. If this time is exceeded, we recommend having the material checked by Minova for compliance with specification. The local legislation on storage has to be taken into consideration.

**DISPOSAL**

Follow local regulations.

**APPROVALS AND CERTIFICATES**

1. Approval of the German Mining Authority 62.12.22.67-7-4 for injection purposes
2. Assessment of the effects of construction products on soil and ground water C-145193-06-Bs (Hygiene Institut)
3. Durability test of GeoFoam P 060502 (LPI Ingenieurgesellschaft mbH)
4. Checking of the grout U2032MIBS-G (DMT)
5. Measuring report A-137320a-06-WR (Hygiene Institut)
6. GeoFoam smoke toxicity, 5659/19181 (BASF)

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**ADDITIONAL DOCUMENTATION**

- MSDS of GeoFoam

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