TECHNISCHES MERKBLATT

THERMOCEM® *Light* „doped“ (with magnetic doping)

Product desciption

ThermoCem® *Light* “doped” is a hydraulically-setting, thermally-optimised dry mortar with increased chemical resistance, developed specially for embedding geothermal probes. This product is magnetically-doped so that the complete filling of the borehole can be verified by measurement technologies using the magnetic susceptibility.

Rezeptur:

		per m³ of suspension	per bag
ThermoCem *Light „doped“*	[kg]	839	25
Water	[liter]	671	20
Yield	[liter]	1000	30

Data

			Laboratory data[1)]	Value range job-site[2)]
Suspension temperature		[°C]	20	≥ 5
Suspension density		[kg/l]	1.51	≥ 1.48
Marsh viscosity		[s]	60	≥ 50
Sieve test (Marsh funnel)			lump-free	lump-free
Water separation	after 1 hour	[%]	1.0	≤ 2.0
	after 24 hours	[%]	1.5	
Compressive strength[3)]	after 1 d	[MPa]	0.5	
	after 2 d	[MPa]	1.5	
	after 3 d	[MPa]	2.8	
	after 4 d	[MPa]	4.0	
	after 7 d	[MPa]	5.6	
	after 28 d	[MPa]	7.9	
Compressive strength of 1 MPa after		[days]	2	
Thermal conductivity		[W/mK]	1.0	
Permeability coefficient[4)] (k_f-value)		[m/s]	$< 1 \times 10^{-10}$	
Processing time		[h]	2.0	

[1)] Guidelines for the preconstruction test in accordance with LQS EWS Baden-Württemberg (December 2018)
[2)] Permissible range of value for testing at job-site in accordance with LQS EWS Baden-Württemberg (December 2018)
[3)] Compressive strength in accordance with DIN EN 196 (prisms)
[4)] Permeability coefficient in accordance with DIN EN17892-11

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Mixing procedure laboratory

- Bucket 5 litre
- Volume of suspension 3 litres (water-solid-ratio = 0.8)
- Colour mixer ∅ 100 mm
- Mixer speed 1.200 rpm, mixing time 120 seconds

Chemical resistance

ThermoCem Light "doped" has a high chemical resistance to water and soil with increased content of sulfate and lime-dissolving carbonic dioxide. This is verified by practical performance tests.
Individual case assessments are to be done with project specific analyses taking into account DIN EN 206 or DIN 4030-1.

Freeze-Thaw resistance

ThermoCem Light "doped" has a high freeze-thaw resistance. This is verified by internal procedures (referring to Austrian standard B 3303).

Environmental compatibility

Reports of the Hygiene-Institut, Gelsenkirchen, certify ThermoCem as harmless regarding the influence on groundwater. The reports can be downloaded on www.heidelbergmaterials.de.

Processing

A flowable ThermoCem Light "doped" suspension is to be prepared by adding the receptive amount of water (drinking water quality). The mixer, the mixing intensity and mixing time have to be chosen to meet the desired values for the job-site given in this data sheet. The suspension has to be lump-free and homogeneous.
To minimize suspension loss in the borehole, you can reduce the shore of water, prolong the mixing time and increase the mixing intensity.
In so doing the flowability, water loss and yield point can be influenced positively.
The processing time at a suspension temperature of 20 °C is up to 2 hours. Varying ambient conditions and mixing parameters can led to different processing times.

The filling of the bore-hole is to be done by the tremie method (from bottom to top) to get a void-free backfilling.

Further information can also be downloaded from www.heidelbergmaterials.de

Delivery and storage

25 kg bags on Euro pallet, shrunk all around; Silo or big bag. Dry storage on pallets is required. When properly stored, the material can be kept for at least 6 months.

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