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Bautechnisches Prüfamt

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European Technical Assessment

ETA-20/0599
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General Part

Technical Assessment Body issuing the
European Technical Assessment:

Trade name of the construction product

Product family
to which the construction product belongs

Manufacturer

Manufacturing plant

This European Technical Assessment
contains

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

Deutsches Institut für Bautechnik

Basalt MiniBars

Polymer macro fibres reinforced with basalt fibre for the
use in concrete

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6 pages including 1 annex which form an integral part of
this assessment

EAD 260067-00-0301

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Specific part

1 Technical description of the product

The polymer macro fibres reinforced with basalt fibre "Basalt MiniBars" for the use in concrete are made of a polymeric matrix coating a basalt fibre thread. The moisture content of the basalt thread with sizing is $\leq 0,50$ % by mass. The basalt fibres are twisted using a sacrificial thread and saturated and coated with a vinyl ester resin. Thereby the macro fibres possess a helix structure. The fibres are manufactured from specified constituents in a production plant and produced as chopped strands in different lengths (43 and 55 mm).

2 Specification of the intended use in accordance with the applicable European Assessment Document

The polymer macro fibres reinforced with basalt fibre "Basalt MiniBars" are intended to be used for preparation of concrete, mortar and other cementitious mixes for structural use in construction and for the manufacturing of precast construction products for structural use. The polymer macro fibres reinforced with basalt fibre are used in concrete to reduce the formation of early age shrinkage cracks. The long-term durability of the fibres in hardened concrete is not assessed.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of concrete incorporating the polymer macro fibres reinforced with basalt fibre "Basalt MiniBars" of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Table 1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance	
Shape/cross section	circular, see Annex A, Fig. 1	
(Equivalent) diameter	0,72 mm	
Length	43 and 55 mm	
Density	2,09 g/cm ³	
Content of resin (coating)	13,9 % by mass	
Tensile strength	≥ 1.100 N/mm ²	
Modulus of elasticity	≥ 49.000 N/mm ²	
Softening temperature (Melting point)	not determinable	
Point of ignition (Decomposition point)	420 °C	
IR analysis of coating	See Annex A, Fig. 2	
Effect on the consistency of concrete	Fibre dosage "Basalt Minibars 43": 10 kg/m ³	See Annex A, Tab. 1
Effect on the strength of concrete (Residual flexural tensile strength)		See Annex A, Tab. 2

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No. 260067-00-0301, the applicable European legal act is: 1999/469/EC(EU).

The system to be applied is: 1

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 20 October 2020 by Deutsches Institut für Bautechnik

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beglaubigt:
Bahlmann

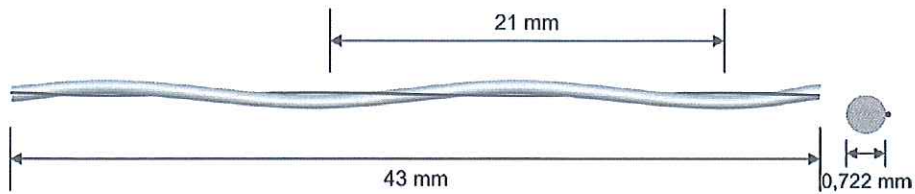


Figure 1: Shape (helix structure) and cross section

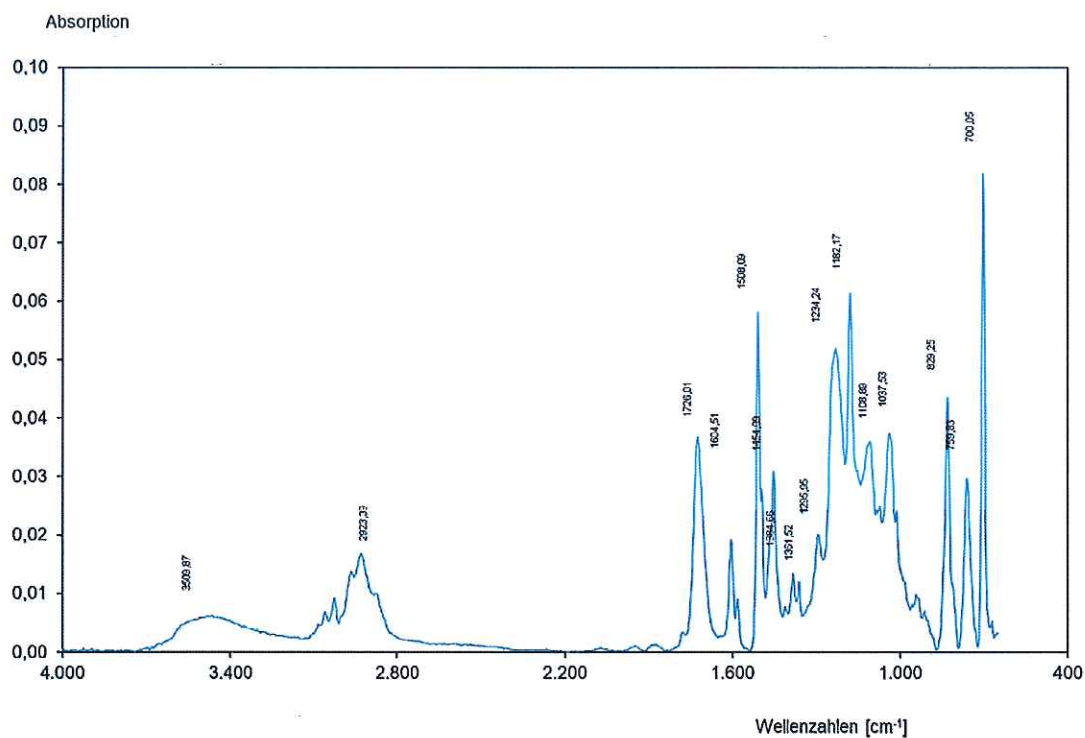


Figure 2: IR analysis of coating

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Table 1: Flow diameter and vebe time of fresh concrete

Concrete	Dosage of "Basalt MiniBars 43"	Flow diameter		Vebe time	
		mm		s	
Reference concrete	-	295	293	6,12	5,76
		290		6,18	
		295		4,99	
Fibre concrete	10 kg/m ³	295	295	8,07	8,66
		295		8,28	
		295		9,65	

Table 2: Residual flexural strength (fibre dosage of 10 kg/m³)

Test specimen (beams)	$f_{ct,L}$	$f_{R,1}$	$f_{R,2}$	$f_{R,3}$	$f_{R,4}$
		0,5 mm CMOD	1,5 mm CMOD	2,5 mm CMOD	3,5 mm CMOD
	MPa				
1	3,980	1,911	1,722	1,477	1,174
2	4,618	2,760	3,028	2,456	1,947
3	4,357	3,610	3,819	3,159	2,566
4	4,259	2,638	2,717	2,287	1,642
5	4,426	2,894	3,220	2,900	2,351
6	4,225	2,959	3,087	2,533	2,074
7	4,550	3,263	3,176	2,518	1,911
8	4,605	3,386	3,324	2,892	2,258
9	4,858	3,363	3,363	2,732	2,271
10	4,731	3,588	3,691	2,776	2,155
11	4,421	2,393	2,404	1,987	1,513
12	4,504	2,172	2,186	1,923	1,593
average	4,461	2,911	2,978	2,470	1,955

Basalt MiniBars

Results of performance assessment

Annex A
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