

Quality properties of asphalt fiber EKI-12

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Assignment **Determination of quality properties of cellulose fiber according to Asphalt norm 2017**

Specimen A bag of cellulose fiber, approximately 6 kg. Specimen was received at the Eurofins laboratory 20.3.2023. Specimen was packed in an air tight plastic bag and a cardboard box. Specimen id given by the customer: EKI-12.

Execution of assignment The following tests were performed to the specimen; short-term heat resistance PANK-3104, moisture content PANK-3103, bulk density PANK-3105, homogeneousness PANK-3107, specific surface area (BET) PANK-2401, fiber length distribution PANK-3106 and binding capability PANK 3101

Eurofins Expert Services Oy has subcontracted these tests:

- Binding capability PANK-3101, Mitta Oy.
- Fiber length distribution PANK-3106, KCL Oy, Espoo.
- Specific surface area (BET) PANK-2401, Oulu University, Kokkola

Results The results of moisture content and short-term heat resistance are shown in chart 1. According to Asphalt norms 2017 these are quality requirements.

The values for bulk density, fiber length distribution, homogeneousness and specific surface area are shown in chart 2. According to Asphalt norms 2017 these are indicative. In addition, the result for binding capability is shown in the chart.

Chart 1. Test results and the compulsory requirements according to Asphalt norms. (*loose fiber*)

Quality	Result	Requirement	Method
Moisture content, mass-%	4,5	≤ 7,0	PANK 3103
Short-term heat resistance - change of mass, mass-%	4,3	≤ 7,0	PANK 3104

Chart 2. Test results and indicative values according to Asphalt norms 2017 (*loose fiber*)
Indicative value for binding capability according Asphalt norms 2011.

Quality	Result	Indicative value	Method
Bulk density 25 °C, g / dm ³	27	20 – 35	PANK 3105
Fiber length - 50 % value, mm - 80 % value, mm	0,7 1,4	0,5 – 0,8 0,8 – 1,6	PANK 3106 **)
Binding capability 170 °C, 1 h Loss of bitumen % - 0,1	Fiber adding % 0,4	Loss of bitumen 0,08-0,15 % is achieved with fiber adding 0,2-0,5 %	PANK 3101 *)
homogeneousness, %	2,2	2,0 – 2,8	PANK 3107
Specific surface area, m ² /g, BET	2,1	2,0 – 3,0	PANK 2401***)

*) Mitta Oy

**) Keskuslaboratorio KCL Oy

***) Oulu University, Kokkola

Espoo, 17.4.2023

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Test results apply only for the tested specimens. Partial publication of this report without the written permission of Eurofins Expert Services is forbidden.

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