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Test report 65/24 Ha 29/02/2024

Customer: Ms Oda Nimmer
Assignment from: 21/02/2024
Received: 22/02/2024

Assignment:

No.	Test	Standard Test conditions
1A	specific thermal conductivity λ	**Alambeta method** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
1B	thermal resistance r	**Alambeta method** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
1C	specific heat capacity c_v	**Alambeta method** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5

Samples:

Coding for test	Identification by customer
Sample 1	Woven fabric Article 1306 Material composition: 100 % PES Coating: 100 % PAN

Sampling: The samples were taken by the customer.

Realisation of the test: The measurement samples were taken und tested in compliance with the above-mentioned regulations.

Testing period: 23/02/2024 – 28/02/2024

Test results:

1A Specific thermal conductivity λ

λ = Quantity of heat, which is passing a material with 1 m² surface and 1 m thickness per second, if there is a temperature difference of 1K between both sides.

λ in $\frac{mW}{m \cdot K}$ mW Milliwatt; m meter; K Kelvin

λ	Sample 1	
	right side	reverse side
$\overline{x}$	39.2	37.6
x_{max}	40.7	39.2
x_{min}	38.2	33.9

The lower the value of the specific thermal conductivity, the less heat is transported and dissipated, the better the thermal insulation.

1B Thermal resistance r

r = Temperature difference between the upper side and the reverse side of a material with a surface area of 1 m² and a given thickness, if a heat flux of 1 Watt is passing through.

r in $\frac{mK \cdot m^2}{W}$ mK Millikelvin; m² square meter; W Watt

r	Sample 1	
	right side	reverse side
$\overline{x}$	26.3	25.2
x_{max}	27.1	26.1
x_{min}	25.7	24.2

The higher the value of the heat resistance, the poorer the heat is transported and dissipated.

1C Specific heat capacity c_v

c_v = volumic heat storage capacity of a material

c_v in $\frac{mW \cdot s}{W \cdot m^3} 10^3$

mW	Milliwatt
s	seconds
K	Kelvin
m^3	cubic meter

c_v	Sample 1	
	right side	**reverse side**
$\bar{x}$	216.8	462.1
x_{max}	233.3	574.4
x_{min}	196.9	364.6

The higher the value of the heat capacity, the more heat can be stored in volume.

The testing results are exclusively related to the sample under conditions as received.

Dr Klobes
Head of the Testing Centre