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Test report 427/22 Ha 28/10/2022

Customer: Ms. Oda Nimmer
Assignment from: 26/10/2022
Received: 27/10/2022

Assignment:

No.	Test	Standard / Test conditions
1.	specific thermal conductivity λ	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
2.	thermal resistance r	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
3.	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 10-A1585-110-140-0 Order No.: 3693344 Piece No.: FS1042686

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: 27/10/2022 – 28/10/2022

Test results:

1. 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.

$$\lambda \text{ in } \frac{mW}{m \cdot K}$$

mW	Milliwatt
m	meter
K	Kelvin

	right side	reverse side
$\bar{x}$	43.2	43.3
x_{max}	43.8	43.9
x_{min}	42.4	42.9

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

2. 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.

$$r \text{ in } \frac{mK \cdot m^2}{W}$$

mK	Millikelvin
m²	square meter
W	Watt

	right side	reverse side
$\bar{x}$	31.1	31.3
x_{max}	31.7	32.2
x_{min}	30.8	30.8

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

3. Specific heat capacity

c_v = volumic heat storage capacity of a material

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

mW	Milliwatt
s	seconds
K	Kelvin
m^3	cubic meter

	right side	**reverse side**
$\overline{x}$	215.8	207.4
x_{max}	223.9	218.3
x_{min}	199.4	195.7

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.

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Dr Klobes
Head of the Testing Centre