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Test report 387/2/22 Ha 10/10/2022

Customer: Ms Oda Nimmer
Assignment from: 29/09/2022
Received: 04/10/2022

Assignment:

No.	Test	Standard / Test conditions
		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 Champ Article 10-10739-811 Order No.: 5197413 Piece No.: ZS325211

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: 04/10/2022 – 06/10/2022

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.

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

mW	Milliwatt
m	meter
K	Kelvin

	right side	**reverse side**
$\overline{x}$	57.1	53.8
x_{max}	59.4	55.2
x_{min}	55.5	52.8

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.

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

mK	Millikelvin
m²	square meter
W	Watt

	right side	**reverse side**
$\overline{x}$	33.3	35.3
x_{max}	34.3	36.1
x_{min}	31.7	33.8

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**
$\bar{x}$	225.1	196.3
x_{max}	237.8	214.6
x_{min}	211.6	178.4

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

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

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i.V. S. Haase

Dr Klobes
Head of the Testing Centre