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Testreport 346/22 Ha 26/08/2022

Customer: Ms Oda Nimmer
Assignment from: 18/08/2022
Received: 18/08/2022

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 1360 Order No.: 3670469 Piece No.: FS1008712

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: 25/08/2022

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

	dense side	open side
$\bar{x}$	41.1	39.2
x_{max}	44.6	40.2
x_{min}	38.8	37.9

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.

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

mK	Millikelvin	
m²	square meter	
W	Watt	

	dense side	open side
$\bar{x}$	18.4	18.9
x_{max}	19.3	19.1
x_{min}	17.2	18.4

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

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

mW	Milliwatt
s	seconds
K	Kelvin
m³	cubic meter

	dense side	open side
$\bar{x}$	236.6	317.9
x_{max}	258.7	348.4
x_{min}	213.7	293.3

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.

i.V. S. Klobes

Dr Klobes
Head of the Testing Centre