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TEST REPORT 176/2/22 Ha 14/04/2022

Customer: Ms Oda Nimmer
Assignment from: -
Received: 08/04/2022

Assignment:
1. Determination of specific thermal conductivity λ, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n = 5, right side and reverse side
2. Determination of the thermal resistance r, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n =5, right side and reverse side
3. Determination of specific heat capacity c_v, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n = 5, right side and reverse side

Samples: 1 piece of fabric, article 10936

Sampling: The samples were taken by the customer.

Realisation of the test: The samples were taken und were tested by the prescriptions mentioned above.

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
$\bar{x}$	47.1	47.3
x_{max}	47.9	48.7
x_{min}	46.2	43.9

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
$\bar{x}$	20.1	20.0
x_{max}	20.6	20.6
x_{min}	19.5	19.5

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

mW	Milliwatt
s	seconds
K	Kelvin
m^3	cubic meter

	right side	**reverse side**
$\overline{x}$	230.6	361.4
x_{max}	241.9	406.9
x_{min}	219.7	292.4

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

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

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i. V. S. Klobes

Dr. Klobes
Head of the Testing Centre