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TEST REPORT 176/2/22

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14/04/2022

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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.

Durch die DAkkS
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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.

λ in	mW ----- m K	mW m meter K Kelvin	Milliwatt
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	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 in	mK m ² ----- W	mK m ² W	Millikelvin square meter Watt
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	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	$\frac{\text{mW}}{\text{K} \cdot \text{m}^3} \cdot 10^3$	$\frac{\text{mW}}{\text{s}} \cdot \text{Milliwatt}$
		s seconds
		K Kelvin

m^3 cubic meter

right side reverse side

\bar{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. Zlaage

Dr. Klobes
Head of the Testing Centre