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Test report 361/22

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14/09/2022

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Customer: Ms. Oda Nimmer
 Assignment from: 06/09/2022
 Received: 06/09/2022

Assignment:

No.	Test	Standard
		Test conditions
1.	specific thermal conductivity λ	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm ² Number of test specimen: 5
2.	thermal resistance r	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm ² Number of test specimen: 5
3.	specific heat capacity c_v	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm ² Number of test specimen: 5

Samples:

Coding for test	Identification by customer
Sample 1	<u>woven fabric</u> Article 1308

Durch die DAkks
 Deutsche Akkreditierungsstelle GmbH
 akkreditiertes Prüflaboratorium

In der Anlage zur Akkreditierungsurkunde sind alle akkreditierten Prüfverfahren aufgeführt. Auf Wunsch wird die Urkunde zugestellt.



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: 06/09/2022 – 08/09/2022

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.

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

	right side	reverse side
\bar{x}	51.0	45.7
x_{\max}	54.9	47.2
x_{\min}	48.1	44.3

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.

$$r \text{ in } \frac{\text{mK m}^2}{\text{W}} \quad \text{mK Millikelvin} \quad \text{m}^2 \text{ square meter} \quad \text{W Watt}$$

	right side	reverse side
\bar{x}	23.9	26.8
x_{\max}	26.1	28.3
x_{\min}	21.8	26.1

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


$$c_v \text{ in } \frac{\text{mW s}}{\text{K m}^3} 10^3 \quad \begin{array}{l} \text{mW} \text{ Milliwatt} \\ \text{s} \text{ seconds} \\ \text{K} \text{ Kelvin} \\ \text{m}^3 \text{ cubic meter} \end{array}$$

	right side	reverse side
\bar{x}	241.5	301.6
x_{\max}	282.9	325.3
x_{\min}	209.5	278.8

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