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Test report 432/22 Ha 04/11/2022

Customer: Ms Oda Nimmer
Assignment from: 31/10/2022
Received: 01/11/2022

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 15498 Material composition: 50 % WO / 50 % WP

<u>Sampling:</u> The samples were taken by the customer.

<u>Realisation of the test:</u> The measurement samples were taken und tested in compliance with the above-mentioned regulations.

<u>Testing period:</u> 01/11/2022 – 02/11/2022

<u>Test results:</u>
<u>1. Specific thermal conductivity λ</u>

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 $\frac{mW}{m \quad K}$

mW	Milliwatt
m	meter
K	Kelvin

	right side	**reverse side**
$\overline{x}$	34.2	35.2
x_{max}	34.9	35.9
x_{min}	33.1	34.2

The lower the value of the specific thermal conductivity, the less heat is transported and dissipated, the better the thermal insulation.

<u>2. Thermal resistance r</u>

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 $\frac{mK \; m^2}{W}$

mK	Millikelvin
m²	square meter
W	Watt

	right side	**reverse side**
$\overline{x}$	44.4	42.8
x_{max}	45.1	44.2
x_{min}	43.3	41.6

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
m^3	cubic meter

	right side	**reverse side**
$\overline{x}$	204.5	279.0
x_{max}	222.3	288.7
x_{min}	190.2	265.8

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

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

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Dr Klobes
Head of the Testing Centre