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Test report 101/24 Ha 08/04/2024

Customer: Ms Oda Nimmer
Assignment from: 03/04/2024
Received: 04/04/2024

Assignment:

No.	**Test**	**Standard** **Test conditions**
1A	specific thermal conductivity λ	**Alambeta method** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
1B	thermal resistance r	**Alambeta method** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
1C	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 1290 Material composition: 96%PES CS 4%PES FR

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: 04/04/2024 – 05/04/2024

Test results:

1A 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 $\frac{mW}{m \cdot K}$

mW	Milliwatt
m	meter
K	Kelvin

λ	**Sample 1**	
	right side	**reverse side**
$\overline{x}$	24.8	22.7
x_{max}	26.3	23.9
x_{min}	23.4	21.5

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

1B 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 $\frac{mK \cdot m^2}{W}$

mK	Millikelvin
m²	square meter
W	Watt

r	**Sample 1**	
	right side	**reverse side**
$\overline{x}$	13.9	15.5
x_{max}	15.1	15.8
x_{min}	12.5	15.0

The higher the value of the heat resistance, the poorer the heat is transported and dissipated.

1C Specific heat capacity c_v

c_v = volumic heat storage capacity of a material

c_v in $\frac{mW \cdot s}{W \cdot m^3} 10^3$

mW	Milliwatt
s	seconds
K	Kelvin
m^3	cubic meter

c_v	**Sample 1**	
	right side	**reverse side**
$\overline{x}$	498.8	402.9
x_{max}	560.8	446.1
x_{min}	417.1	350.5

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