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Test report 333/1A/23 Ha 14/11/2023

Customer: Ms. Oda Nimmer
Assignment from: 26/09/2023
Received: 28/09/2023

Assignment:

Nr.	**Prüfung**	**Norm** **Prüfbedingungen**
1.	Specific thermal conductivity λ	**Alambeta-Verfahren** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
2.	Thermal resistance r	**Alambeta-Verfahren** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5
3.	Specific heat capacity c_v	**Alambeta-Verfahren** Temperature difference 10 K contact pressure of the plunger 10 cN/cm² Number of test specimen: 5

Sample:

Woven fabrics

Coding for test	Identification by customer
Sample 1	Woven fabrc Article 1315 Material composition: 100 % PES Coat: 100 % PAN FR

Sampling: The samples were taken by the customer.

Realisation of the test: The measurement samples were taken and tested in compliance with the above-mentioned regulation.

Testing period: 05/10/2023

Test result:

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 1 K between both sides.

λ in $\frac{mW}{m \cdot K}$ mW Milliwatt
m meter
K Kelvin

λ	Sample 1	
	right side	reverse side
$\bar{x}$	44.7	43.7
x_{max}	45.7	44.4
x_{min}	44.4	43.0

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

mK	Millikelvin
m²	square meter
W	Watt

r	Sample 1	
	right side	reverse side
$\overline{x}$	20.7	20.7
x_{max}	21.3	21.0
x_{min}	20.4	20.2

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

mW	Milliwatt
s	seconds
K	Kelvin
m³	cubic meter

c_v	Sample 1	
	right side	reverse side
$\overline{x}$	437.7	459.3
x_{max}	447.5	498.6
x_{min}	424.5	439.2

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

p.p. S. Haase

Dr Klobes
Head of the Testing Centre