Akkreditierte Prüfstelle – TITV e. V. • Zeulenrodaer Str. 42 • 07973 Greiz

ZIMMER + ROHDE GmbH
Zimmersmühlenweg 14-18
61440 Oberursel / Taunus

Textilforschungsinstitut
Thüringen-Vogtland e. V.
Akkreditierte Prüfstelle

Zeulenrodaer Str. 42
07973 Greiz – Germany

Test report 333/2/23 Ha 16/10/2023

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

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 10975 Material composition: Ground 100 % CO, Pile 100 % CO

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: 04/10/2023 – 05/10/2023

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

mW Milliwatt
m meter
K Kelvin

λ	Sample 1	
	right side	reverse side
$\overline{x}$	96.8	99.3
x_{max}	107.6	102.0
x_{min}	92.9	94.9

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

mK Millikelvin
m² square meter
W Watt

Thermal resistance r

r	Sample 1	
	right side	reverse side
$\overline{x}$	26.4	25.7
x_{max}	26.8	26.8
x_{min}	26.1	25.1

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

mW	Milliwatt
s	seconds
K	Kelvin
m^3	cubic meter

c_v	Sample 1	
	right side	reverse side
$\overline{x}$	207.3	355.7
x_{max}	221.1	387.0
x_{min}	179.3	324.5

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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p.p. S. Klobes

Dr Klobes
Head of the Testing Centre