

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

Textilforschungsinstitut
 Thüringen-Vogtland e. V.
 Akkreditierte Prüfstelle

Zeulenrodaer Str. 42
 07973 Greiz – Germany

Test report 387/1/22

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10/10/2022

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Customer: Ms Oda Nimmer
 Assignment from: 29/09/2022
 Received: 04/10/2022

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> Fleur de laine RE Article 10-19590-334 Order No.: 5197413 Piece No.: ZS325263

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: 04/10/2022 – 06/10/2022

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.

$$\lambda \text{ in } \frac{\text{mW}}{\text{m K}} \quad \text{mW} \quad \text{m} \quad \text{K} \quad \begin{array}{l} \text{Milliwatt} \\ \text{meter} \\ \text{Kelvin} \end{array}$$

	right side	reverse side
\bar{x}	40.2	42.6
x_{\max}	41.4	43.4
x_{\min}	39.4	41.6

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.

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

	right side	reverse side
\bar{x}	23.5	22.7
x_{\max}	23.9	23.3
x_{\min}	23.0	22.0

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

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

mW	Milliwatt
s	seconds
K	Kelvin
m ³	cubic meter

	right side	reverse side
\bar{x}	352.4	364.7
x_{\max}	389.4	395.6
x_{\min}	334.2	340.7

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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i.v. S. Raase

Dr Klobes
Head of the Testing Centre