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**Test report 432/22**

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04/11/2022

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

Assignment:

No.	Test	Standard
		Test conditions
1.	specific thermal conductivity $\lambda$	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm <sup>2</sup> Number of test specimen: 5
2.	thermal resistance r	Alambeta method
		Temperature difference 10 K contact pressure of the plunger 10 cN/cm <sup>2</sup> 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 <sup>2</sup> Number of test specimen: 5

Samples:

Coding for test	Identification by customer
Sample 1	<u>woven fabric</u> Article 15498 Material composition: 50 % WO / 50 % WP

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: 01/11/2022 – 02/11/2022

Test results:

1. Specific thermal conductivity  $\lambda$

$\lambda$  = Quantity of heat, which is passing a material with 1 m<sup>2</sup> surface and 1 m thickness per second, if there is a temperature difference of 1K between both sides.

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

	<b>right side</b>	<b>reverse side</b>
$\bar{x}$	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.

2. Thermal resistance  $r$

$r$  = Temperature difference between the upper side and the reverse side of a material with a surface area of 1 m<sup>2</sup> and a given thickness, if a heat flux of 1 Watt is passing through.

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

	<b>right side</b>	<b>reverse side</b>
$\bar{x}$	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

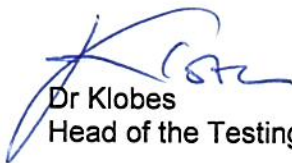
$$c_v \text{ in } \frac{\text{mW s}}{\text{K m}^3} 10^3 \quad \begin{array}{l} \text{mW} \text{ Milliwatt} \\ \text{s} \text{ seconds} \\ \text{K} \text{ Kelvin} \\ \text{m}^3 \text{ cubic meter} \end{array}$$

	right side	reverse side
$\bar{x}$	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