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T E S T R E P O R T 01/20 Pie 06.01.2020

Customer: Ms Oda Nimmer/Ms Meike Ludwig
Assignment from: 13.12.2019
Received: 16.12.2019

Assignment:
1. Determination of specific thermal conductivity λ, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n = 5, right side and reverse side
2. Determination of the thermal resistance r, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n =5, right side and reverse side
3. Determination of specific heat capacity c_v, temperature difference 10 K, contact pressure of the plunger 10 cN/cm², Alambeta method, n = 5, right side and reverse side
4. Determination of light transmittance according to DIN EN 410, n = 3

Samples: 1 piece of fabric article 1389 Twilight, 100 % polyester

Sampling: The samples were taken by the customer.

Realisation of the test: The samples were taken und were tested by the prescriptions mentioned above.

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.

$$\lambda \text{ in } \frac{mW}{m \cdot K}$$

mW Milliwatt
m meter
K Kelvin

	right side	**reverse side**
$\bar{x}_1$	41.1	43.2
x_{max}	41.9	44.4
x_{min}	39.5	42.5

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.

$$r \text{ in } \frac{mK\ m^2}{W}$$

mK	Millikelvin
m²	square meter
W	Watt

	right side	**reverse side**
$\bar{x}_1$	17.3	16.9
x_{max}	17.5	17.2
x_{min}	17.0	16.7

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

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

mW	Milliwatt
s	seconds
K	Kelvin
m³	cubic meter

	right side	**reverse side**
$\bar{x}_1$	285.1	409.4
x_{max}	296.8	378.5
x_{min}	264.5	429.6

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

4. Light transmittance **reverse side**

Light transmittance [%]	2.0

In the enclosure you get the measurement report. There you can find the single values.

Dr. Klobes
Head of the Testing Centre