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Customer: Ms Oda Nimmer
Assignment from: 22/06/2020
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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

Samples: 1 piece of fabric article 2628

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
$\overline{x}_1$	47.8	44.5
x_{max}	51.2	45.8
x_{min}	43.7	42.7

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
$\overline{x}_1$	19.8	22.0
x_{max}	21.5	22.8
x_{min}	18.4	21.5

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
$\overline{x}_1$	169.6	301.2
x_{max}	186.7	314.4
x_{min}	155.2	283.1

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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Dr. Klobes
Head of the Testing Centre