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Certificate of Analysis

Isofolie
attn. Mr. L. Tummers
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Date	:	04 September 2015
Subject	:	Determination of lambda value on Isofolie T 4,0
Your Code	:	mail confirmation d.d. 10-08-2015
Laboratory Number	:	152179
Sampling	:	Samples have been taken on Unknown date at Born, NL by L. Tummers, Isofolie
Period of Investigation	:	12/08/2015 until 04/09/2015

Sample Data

Sample No	Sample Type	Sample Code	Date of Acceptance
1	Isofolie	Isofolie T 4,0	12/08/2015

Methods

Analysis	Technique	Method	Q	s
Thermal resistance, guarded hot plate method	-	EN 12667	Q	

Q = accredited by RvA, s = subcontracted, Qs = subcontractor accredited by RvA

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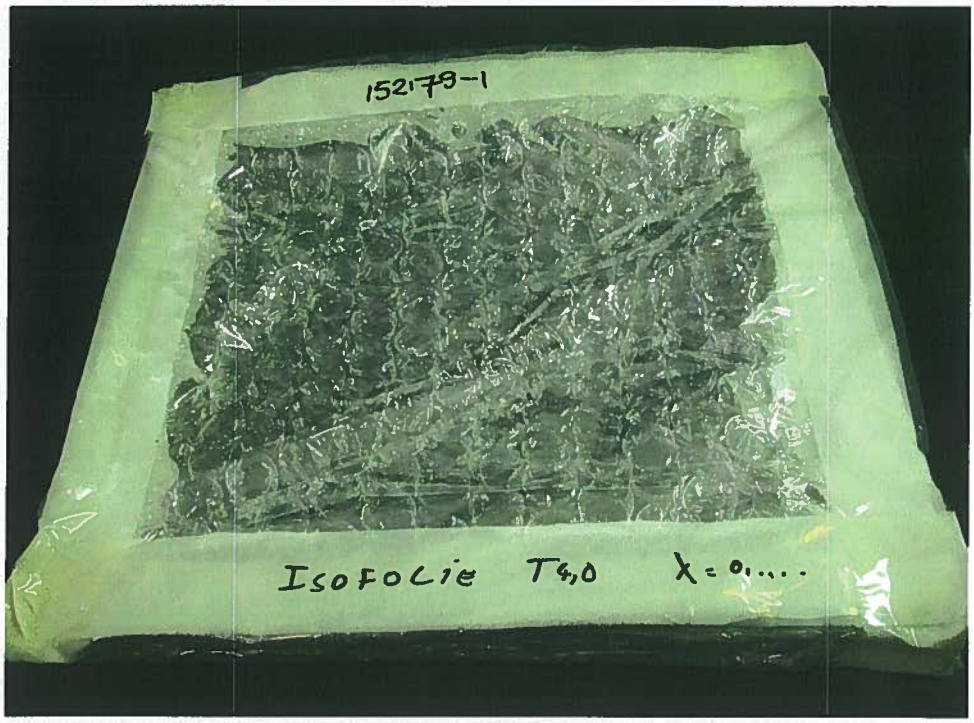
Sample Image

Sample No.	*Sample image of Isofolie T 4,0 with SGS reference number 152179-1 as provided by the client*

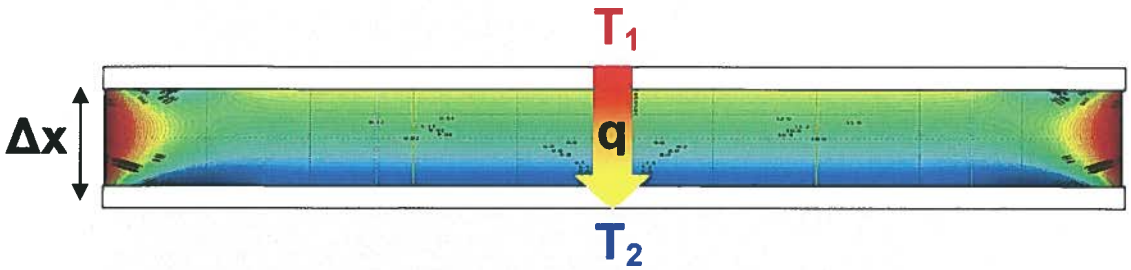
1



Measurement explanatory

Explanatory image of measurement

Measurement of heat flow through the specimen resulting from a created temperature difference of 10K over the thickness of 63mm. Cross section:



$$q = -\lambda \frac{\Delta T}{\Delta x}$$

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Results

Thermal resistance, guarded hot plate method

NEN-EN 12667

The guarded hot plate (GHP) is used to establish a unidirectional constant and uniform density of heat flow rate at a constant temperature difference over the specimen. The heat flow is measured at a mean temperature (temperature in middle of specimen) of 10°C. The λ_{10} value can be calculated with known thickness, heat flow and temperature difference.

Remarks: ***Measured at nominal thickness***

	Unit	***Individual Results***
Nominal thickness [4)]	mm	63.0
Density [5)]	kg/m^3	19.1
Thermal conductivity λ_{10}	mW/(m·K)	19.8
Thermal resistance R_{10}	m^{2}K/W	3.179

Remarks

1. The λ-value is the parameter that has been determined by the EP500e apparatus resulting from the thickness, temperature and power determination. The R-value has been calculated with the given thickness and λ-value.
2. The λ_{10}-value is common parameter that is usually determined in the building industry. This is a value for heat conductivity of a sample with a uniform temperature difference over its thickness and a mid temperature of 10°C.
3. The thickness of the sample is chosen based on what was convenient for measurement with the EP500e test apparatus. In the building industry, it is common to measure thermal conductivity on actual product thickness (e.g. insulation materials).
4. The product does not have a uniform measurable thickness without surface pressure. The measurement is therefore performed at a predetermined (nominal) thickness. This means that the distance between the temperature plates of the apparatus is determined, based on a total connection of the sample with the full surface of the plates. Iterative mounting of the sample led to a measurement thickness of 63mm.
5. The density is calculated from the measured weight and the above explained measurement thickness.
6. The most important influencing factors on the eventual test results are the composition of the sample and the way of mounting. What should be mentioned for this research is:
    a. The 500 x 500mm sample as shown on page 2 is prepared by the client.
    b. SGS cannot guarantee that the characteristics of the eventual product are the same as the measured sample.
    c. Influencing factors that lead to a different performance in the field compared to the sample could be (but not necessarily): different airflow through layers, different compaction and different moisture content within the sample.