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File number: **23/32307307**

Petitioner: **SAUDI RUBBER PRODUCTS FACTORY**
First Industrial City,
Al Qassim
Saudi Arabia

J/F
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TEST REPORT

Reception sample date: 2023-12-11
Test performed on date: 2023-12-11 to 2023-12-12

OBJECT OF THE TEST

Determination of the thermal resistance and thermal conductivity according to standard EN 12667:2001: "Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance."

RECEIVED MATERIAL

A black rubber insulation material was received from the petitioner and with the following references and measures provided by the petitioner:

Product's commercial reference: **SRPFLEX**

Material: NBR / PVC

Dimensions: 150 x 150 x 17 mm

Density: 0.058 g/cm³

Colour: Black

Manufacturer: Saudi Rubber Products Factory. Address: First Industrial City, Al Qassim, Saudi Arabia.

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Activities marked (*) are not covered by ENAC accreditation

Sample identification	Dimensions of tested sample (m)	Quantity	Sample number (laboratory)
SRPFLEX	0.164 X 0.166 X 0.017	1	18750

Note: Last column is added to introduce the sample identification number according to the laboratory.

REQUESTED TESTS

Determination of the thermal conductivity and thermal resistance according to the test standard EN 12667:2001.

TEST METHOD

Tests based on the Standard EN 12667:2001 "Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance."

Thermal conductivity is measured using the following equipment:

A guarded hot plate for a sample of symmetrical dimensions 500 x 500 mm, with an area of measurement of 150 x 150 mm, reducing the edge heat losses, identified as Lambda-Meter EP 500, with equipment nº 170196. The environmental atmosphere of the place that surrounded the equipment during the test is maintained between (23±5)°C.

In this equipment, the sample is assembled horizontally with descending flow. The position of the hot side of the sample is the superior one.

This equipment has been verified in date 2023-11-02 using the sample pattern ETAL 125_01_EPS of polystyrene (PS) verified by LGAI Technological Center S.A. in date 2013-01-11, it is registered in the test report nº2013654.

SAMPLE CONDITIONING

Sample was stored in a conditioning chamber before the test to maintain a constant mass at (23±2)°C and (50±5)% relative humidity carrying out successive weighing at 24-hour intervals, until the constant weight is achieved according to internal procedure C5210451 and test standard EN 12667:2001.

DENSITY AND MASS CHANGE

Δm_r : Relative mass change of the material as received due to drying.

Δm_c : Relative mass change of the material due to a more complex conditioning procedure.

Δm_w : Relative mass change for the material before and after the test.

ρ_c : Material density after a most complex conditioning process (until equilibrium with the normal atmosphere of the laboratory)

ρ_0 : Density of the dry material as tested.

- **Conditioned sample.**

Sample	Thickness (m) ⁽¹⁾		Δm_r ⁽²⁾	Δm_c	Density ρ_c (Kg/m ³) ⁽³⁾
18750	0.0170	Measured	0	0.0036	59.0

⁽¹⁾ Thickness as measured according to the test procedure C5210451.

⁽²⁾ Drying in heater conditioning is not performed, therefore $\Delta m_r=0$.

⁽³⁾ From the dimensions of the sample, the thickness as indicated previously and conditioned mass of the sample.

- **Tested sample.**

Sample	Δ Thickness (m) ⁽⁴⁾	Δm_w	Temperature difference (K)	Average T ^a (°C)
18750	0	0.0036	15	10

⁽⁴⁾ No variation is observed in the dimensions of the sample, so that Δ thickness=0

The test was carried out by the operator Rafael Carreras.

RESULTS

Uncertainty of the test: $\pm 0.002 \text{ W/m}\cdot\text{K}$

Environmental conditions: 20.7 °C and 46 % RH

Sample		
18750		
Temperature difference (K)	T ^a average during test (°C)	Sample thickness (m)
15	10	0.0170
Flow heat density (W/m ²)	Thermal resistance (m ² ·K/W)	Thermal conductivity (W/m·K)
33.868	0.443 (*)	0.038

(*) The test material does not fall within the scope of the standard since it has a thermal resistance of less than 0.5 m²·K/W.

Laboratory Manager
LGAI Technological Center S.A. (APPLUS)

Responsible of Thermal Tests
LGAI Technological Center S.A. (APPLUS)

The results refer exclusively to the samples tested at the time and under the conditions indicated.

The uncertainties expressed in this document pertain to the expanded uncertainty, which has been obtained by multiplying the typical measurement uncertainty by the coverage factor k=2 which, for a regular distribution, corresponds to a coverage probability of approximately 95%.

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