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Petitioner reference: **SGS-CSTC Standards Technical Services Co.Ltd.**
1F West No.4 Building, Lingyun Industry Park, No 1177
1177 – Ningbo
(Zhejiang)

PRODUCT TYPE REPORT

Reception samples date: 2025-04-22

Tests performed on dates: 2025-04-23 to 2025-04-29

OBJECT OF THE TEST

Test for Determination for the Product Type (DPT) of thermal resistance of the construction product EN 13164:2012+A1:2015: "Thermal insulating products for buildings – Factory made extruded polystyrene [XPS] products - Specification." according to the test 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".

LGAI TECHNOLOGICAL CENTER S.A. is Notified Body No. 0370 under the Construction Product Regulation No. 305/2011 for CE Marking; System 3.

RECEIVED MATERIAL

Two samples of thermal insulation were received from the petitioner with the following references and measures provided by the petitioner:

Product reference: **XPS INSULATION BOARD 50 mm**

Material: XPS

Superficial density: 32 kg/m²

Colour / Appearance: Blue / Smooth

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Manufacturer: ANHUI JIT NEW MATERIAL CO., LTD. Address: NO. 7, Songquan East Road, Xuancheng Hi-Tech Industrial Development Zone, Anhui Province, China.

Sample identification	Dimensions of sample received (m)	Quantity	Sample number (laboratory)
XPS INSULATION BOARD 3	0.500 X 0.500 x 0.050	1	33021
XPS INSULATION BOARD 4	0.500 X 0.500 x 0.050	1	33022

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

REQUESTED TESTS

Test according to product standard EN 13164:2012+A1:2015 and test standard EN 12667:2001.

TEST METHOD

Test 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 2025-03-03 using the sample pattern ETAL 125_01_EPS of expanded polystyrene verified by el LGAI Technological Center S.A. on date 2013-01-11, it is registered in the test report n°2013654.

Harmonized product standard applicable according to the specifications of the petitioner: EN 13164:2012+A1:2015.

The tests were carried out by the technician Rafael Carreras.

SAMPLES CONDITIONING

Samples were conditioned in a conditioning chamber at (23 ± 3) °C and (50 ± 10) % of relative humidity up to constant weight, according to section 5.2 of EN 13164:2012+A1:2015.

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 samples.

Sample	Thickness (m) ⁽¹⁾		Δm_r ⁽²⁾	Δm_c	Density ρ_c (Kg/m ³) ⁽³⁾
33021	0.0498	Measured	0	0.0005	33.1
33022	0.0497	Measured	0	0.0002	33.2

⁽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 samples.

Sample	Δ thickness (m) ⁽⁴⁾	Δm_w	Temperature difference (K)	Average T ^a (°C)
33021	0	0.0005	15	10
33022	0	0.0002	15	10

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

RESULTS

Uncertainty of the test = $\pm 0.001 \text{ W/m}\cdot\text{K}$

Environmental conditions: 20.0 °C and 52 % RH

Sample		
33021		
Temperature difference (K)	T ^a average during test (°C)	Sample thickness (m)
15	10	0.0498
Flow heat density (W/m ²)	Thermal resistance (m ² ·K/W)	Thermal conductivity (W/m·K)
7.018	2.137	0.023

Uncertainty of the test = $\pm 0.001 \text{ W/m}\cdot\text{K}$

Environmental conditions: 22.2 °C and 50 % RH

Sample		
33022		
Temperature difference (K)	T ^a average during test (°C)	Sample thickness (m)
15	10	0.0497
Flow heat density (W/m ²)	Thermal resistance (m ² ·K/W)	Thermal conductivity (W/m·K)
6.984	2.148	0.023

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

Responsible for 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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