

Katowice, 15 April 2025

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REPORT No. 70/25/124/M-1/ $\lambda_{HFM I}$
ON THERMAL PROPERTIES OF BUILDING PRODUCTS AND
MATERIALS – DETERMINATION OF THERMAL RESISTANCE
USING THE HEAT FLUX SENSOR METHOD – PRODUCTS WITH
HIGH AND MEDIUM THERMAL RESISTANCE
according to PN-EN 12667:2002
(number of pages: 3)

1. Description and identification of the tested item:
As declared by the client:
Product sample: SOLVO SO-01 PVC-U panels for external walls
according to PN-EN 13245-2:2009/AC:2010,
manufactured by: Profile VOX sp. z o.o. Sp. k.,
ul. Gdyńska 143, 62-004 Czerwonak, Poland.
The following items were supplied for testing:
 - 1 undamaged sample measuring approximately (300 x 300 x 56) mm, consisting of three layers of tightly adhering panels.
2. Name and address of the client:
Profile VOX sp. z o.o., Sp. k., ul. Gdyńska 143, 62-004 Czerwonak, Poland
3. Order No. and date: Order No. 70/25 dated 17 Jan. 2025
4. Product sample ~~collection~~/delivery date: 27 March 2025
5. Testing date: 07 Apr. 2025 ÷ 09 Apr. 2025
6. Product sample collection/delivery procedure:
Product sample collected and delivered to Łukasiewicz-WIT "IZOLACJA" Construction Materials Laboratory by the client. No data on product sampling.
7. Seasoning routine:
The test sample was conditioned to constant weight at $(23 \pm 2)^{\circ}\text{C}$ and $(50 \pm 5)\%$ relative humidity.

8. Test results:

No.	Property	Test results
1	2	3
1.	Sample thickness, m	0.0565
2.	Mass of seasoned material tested, g	2035
3.	Relative change in weight during seasoning	0.00
4.	Relative change in weight during testing	0.00
5.	Change in thickness (and volume) during testing, mm (mm^3)	0.0 (0.0)
6.	Mean sample temperature difference during testing, K	20.0
7.	Mean test temperature, $^{\circ}\text{C}$	10.0
8.	Ambient temperature surrounding the testing instrument during the test, $^{\circ}\text{C}$	21
9.	Density of the heat flux passing through the sample during testing, W/m^2	30.03
10.	Thermal resistance, R , $\text{m}^2 \cdot \text{K/W}$	0.666
11.	Thermal conductivity coefficient, λ , $\text{W/m} \cdot \text{K}$	0.0848
12.	Uncertainty (U) of measurement of the thermal conductivity coefficient, λ , $\text{W/m} \cdot \text{K}$ (The reported uncertainty is an expanded uncertainty with a confidence level of approximately 95% and coverage factor $k=2$)	0.0041

9. Other observations: none.

10. Additional information:

- The test was carried out at "IZOLACJA" Construction Materials Laboratory.
- Test sample thickness: measured in the apparatus under a load of 300 Pa.
- Calculated thermal resistance for one layer of panels is 1/3 of the measured resistance, i.e. $0.222 \text{ m}^2 \cdot \text{K/W}$.
- Measurements taken using a Netzsch HFM 446M device – measuring section dimensions: (102 x 102) mm, buffer section dimension: (305 x 305).
- Date of last calibration of the heat flux sensors: 25 March 2025.
- Calibrated using CRM IRMM-440 (Joint Research Center IRMM, Institute for Reference Materials and Measurements, Geel, Belgium):
CRM IRMM-440 thermal resistance at 10°C : $R_{10} = 1.066 \text{ m}^2 \cdot \text{K/W}$.
CRM IRMM-440 certification date: March 2000.
- Type of device: single-sample, symmetrical.
- Device orientation: horizontal.
- Hot sample side position: bottom.
- Edge heat loss reduction method: edge insulation.

11. Deviation or variation in the test method: none.

Tested by: Bogdan Kuźnik

Report by:
Adam Bielak

Authorised by: mgr Ewelina Kaputa-Kuc
Manager of the "IZOLACJA" Construction Materials Laboratory
/signed electronically/

Remarks:

1. The report is the property of the client.
2. The test results given in the Report refer to the tested samples of the product.
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