

**Determination of installed thermal resistance into a roof and into a wall of
ATI MIX OUATE DE CELLULOSE INTERIEUR according to EN ISO 6946:2017**

(test name)

Test method: Determination of installed thermal resistance into a roof and into a wall according to
EN ISO 6946:2017 and EN 16863:2023

(number of normative document or test method, description of test procedure, test uncertainty)

Product name: **ATI MIX OUATE DE CELLULOSE INTERIEUR**

(identification of the specimen)

Customer: SAS ATI FRANCE, 146 Avenue du Bicentenaire – FR-01120 Dagneux, France

(name and address of enterprise)

Manufacturer: SAS ATI FRANCE, 146 Avenue du Bicentenaire – FR-01120 Dagneux, France

Calculation results:

Roof slope angle, α	Calculation method reference no.	Calculation result, R , ($\text{m}^2 \cdot \text{K}$)/ W
Flat roof ($\alpha = 0^\circ$)	EN ISO 6946:2017	6.08
Pitched roof ($\alpha = 30^\circ$)		6.13
Pitched roof ($\alpha = 45^\circ$)		6.16
Wall ($\alpha = 90^\circ$)		6.28

R value for others pitched sloop (different α value) can be determined by linear interpolation between two calculated R values

Calculation

made by: Building Physics Laboratory, Institute of Architecture and Construction of Kaunas
University of Technology

(Name of the organization)

Products used in calculation: Ventilated air layer (external surface resistance R_{se}).
Cellulose fiber panel "Pavacell P" 80 mm, $\lambda_{ref} = 0.039 \text{ W(m}\cdot\text{K)}$; $R = 2.05 \text{ (m}^2 \cdot \text{K)/W}$ *;
 $\varepsilon = 0.90$.
Multilayer reflective insulation product **ATI PRO PREMIUM** (test report no. 106
SF/23 U). Emissivity of ATI PRO PREMIUM upper surface $\varepsilon = 0.10^{**}$; lower surface
 $\varepsilon = 0.10^{**}$.
Unventilated air layer 20 mm.
* Dossier / File P233719 – Document DEC / 1
** Declared by the manufacturer

Additional information: Application, 2023-11-13

Annex: Annex I. Calculation results

(the numbers of the annexes should be pointed out)

Head of Laboratory:
(approves the test results)

K. Banionis
(n., surname)

(signature)

Calculated by
(calculation made by)

J. Ramanauskas
(n., surname)

(signature)

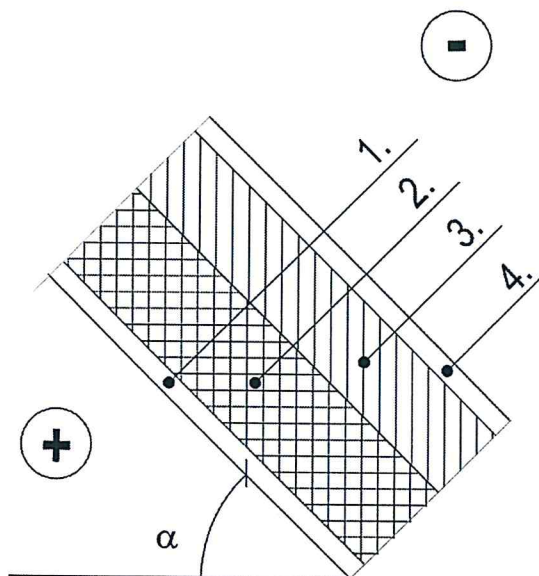
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Validity – the named data and results refer exclusively to the tested and described specimens.
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Annex 1: Calculation results

Table 1: Products R- values

Product	Thermal resistance R, (m ² ·K)/W
Pavacell P 80 (Dossier / File P233719 – Document DEC / 1)	R = 2.05
ATI PRO PREMIUM (test report no. 106 SF/23 U)	R_{core90/90} = 3.52
<p>“R_{core90/90}” is the declared R core value following EN 16012 + A1. “R_{core90/90}” is calculated on 4 results of 4 samples came from 4 different fabrication dates following EN 16012 + A1 (and using the fractile 90/90 calculation rules $S_{R-prod} = \sqrt{\frac{\sum(R_i - R_{average})^2}{n-1}}$);</p>	



Temperature regime of air cavities: $\theta_{mn} = 10\text{ °C}; \Delta T = 5\text{ K}$	
1.	Unventilated Air cavity #1, 20 mm
2.	ATI PRO PREMIUM
3.	PAVACELL P, 80 mm
4.	Ventilated Air cavity #2, 20 mm

Figure 1. Roof construction design

Table 2: Roof construction calculation results for slope $\alpha = 0^\circ$ (EN ISO 6946)

ATI MIX OUATE DE CELLULOSE INTERIEUR installed on roof			
Angle: $\alpha = 0^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.4066	m ² ·K/W
	ATI PRO PREMIUM	3.52	m ² ·K/W
	PAVACELL P 80	2.05	m ² ·K/W
	Ventilated Air cavity # 2 (the thermal resistance of external surface R_{se})	0.1038	m ² ·K/W
	R Total	6.08	m²·K/W

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Table 3: Roof construction calculation results for slope $\alpha = 30^\circ$ (EN ISO 6946)

ATI MIX OUATE DE CELLULOSE INTERIEUR installed on roof			
Angle: $\alpha = 30^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.4493	m ² ·K/W
	ATI PRO PREMIUM	3.52	m ² ·K/W
	PAVACELL P 80	2.05	m ² ·K/W
	Ventilated Air cavity # 2 (the thermal resistance of external surface R_{se})	0.1132	m ² ·K/W
	R Total	6.13	m²·K/W

Table 2: Roof construction calculation results for slope $\alpha = 45^\circ$ (EN ISO 6946)

ATI MIX OUATE DE CELLULOSE INTERIEUR installed on roof			
Angle: $\alpha = 45^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.4741	m ² ·K/W
	ATI PRO PREMIUM	3.52	m ² ·K/W
	PAVACELL P 80	2.05	m ² ·K/W
	Ventilated Air cavity # 2 (the thermal resistance of external surface R_{se})	0.1186	m ² ·K/W
	R Total	6.16	m²·K/W

Table 3: Wall construction calculation results for slope $\alpha = 90^\circ$ (EN ISO 6946)

ATI MIX OUATE DE CELLULOSE INTERIEUR installed on wall			
Angle: $\alpha = 90^\circ$	Layer	R value	Unit
Ascendant Heat Flux (Winter period)	Unventilated Air cavity # 1	0.5684	m ² ·K/W
	ATI PRO PREMIUM	3.52	m ² ·K/W
	PAVACELL P 80	2.05	m ² ·K/W
	Ventilated Air cavity # 2 (the thermal resistance of external surface R_{se})	0.1402	m ² ·K/W
	R Total	6.28	m²·K/W

Requirements for calculation validity:

- Calculations of R values are valid for a pitched roof (α is generally from 0° to 90°).
- Calculations of R values are valid when ATI PRO PREMIUM is installed in agreement with the installation guidelines described into the manufacturer brochure.

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