



## INSTITUTE FOR TESTING AND CERTIFICATION

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Division CSI - Centre of Civil Engineering

Notified Body No. 1023



## REPORT OF ASSESSMENT OF PERFORMANCE

No. 755200287 / 2023

Product: **Stavební reflexní izolační pás typ RTI z lehčeného PE OBOUSTRANNĚ laminovaný Stavební izolační pás oboustranně laminovaný AL fólií „2 x AL“ Stavební izolační pás oboustranně laminovaný AL fólií a z druhé strany PETZ fólií „kombinovaný“**

Applicant: **REFLEXNÍ TEPELNÁ IZOLACE Haasová-Menhart® majitelé užitého vzoru Marie Haasová Nábřeží kpt. Nálepky 471/3 339 01 Klatovy, Czech Republic**

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Representative of the Notified Body No: 1023

## 1. Introduction

This report was elaborated on the basis of the application No. 755200287, registered on 10/02/2023 and tests results carried out by the notified testing laboratory in accordance with the procedure mentioned in the article 1.4 of the Annex V to the Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011, as amended, laying down harmonised conditions for the marketing of construction products („CPR“).

## 2. Assessment and verification of constancy of performance according to Regulation (EU) No 305/2011 of the European Parliament and of the Council, as amended

Factory made thermal insulation products from polyethylene foam (PEF) for building equipment and industrial installations as construction products are assessed on the basis of relevant clauses of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9th March 2011 laying down harmonised conditions for marketing of construction products and repealing Council Directive 89/106/EEC as amended (called „CPR“)

### 2.1 System of assessment and verification of constancy of performance (AVCP)

The submitted product is assessed pursuant to system of AVCP 3 of the CPR (Annex V). The type testing was carried out according to Annex ZA of the standard ČSN EN 14313+A1:2013 (EN 14313:2009+A1:2013).

### 2.2 Indicators specifying basic requirements for construction works

The initial type testing (testing) was carried out by the notified body (the notified testing laboratory) in the following range of relevant properties according to Table ZA.4 (of the ČSN EN 14313+A1:2013):

- Reaction to fire
  - ignitability – surface exposure and edge according to ČSN EN ISO 11925-2 (exposure time: 15s)
  - classification according to ČSN EN 13501-1
- Thermal resistance according to ČSN EN 14313+A1:2013, art. 5.3.2 and ČSN EN 12667 in range from -5° to 35 °C (for the temperatures -5°C, 0°C, +10°C, +15 °C, +25°C and +35 °C)
- Dimensions and tolerances – width for rolls according to ČSN EN 822
- Dimensions and tolerances – thickness for rolls according to ČSN EN 823
- Short-term water absorption by partial immersion according to ČSN EN ISO 29767, method B
- Rate of release of corrosive substances – quantities of water soluble chloride ions and the pH-value according to ČSN EN 14313+A1:2013, art. 4.3.6, Table ZA.1 and ČSN EN 13468

### 2.3 Product specification

Factory made thermal insulation products in the form of rolls and boards with double-sided lamination (AL foil, PETZ foil) from polyethylene foam (PEF) for building equipment and industrial installations.

Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL" is a thermal and sound insulation material made from lightweight polyethylene (extrusion). The structure of the material is made up of closed cells, reinforced fiberglass. The construction roll consists of two layers of aluminum with a thickness of 12 - 20 microns and various thicknesses of foamed polyethylene. The thickness range is from 4 mm to 50 mm.

Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined" is a thermal and sound insulation material made from lightweight polyethylene (extrusion). The structure of the material is made up of closed cells, a reinforced polyester grid. The construction roll consists of lightweight foam polyethylene with aluminum foil with a thickness of 12 - 20 microns and a PETZ layer of approx. 20 microns. The thickness range is from 4 mm to 50 mm.

Use for thermal insulation of building structures, roofs, ceilings, walls up to a maximum temperature of 90°C.

The products do not contain flame retardants.

Blowing agent: isobutane.

### 2.4 Sampling place and number of samples taken

The test samples were sent by the applicant based on the requirements of the certification person. The test samples were registered under registration number 755200287/1 to /4 on 13/02/2023.

The number of the test samples sent was as follows:

755200287/1	Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL", thickness 8 mm, dimensions 1 x 3 m, manufactured date on 9.2.2023
755200287/2	Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 8 mm, dimensions 1 x 3 m, manufactured date on 9.2.2023
755200287/3	Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL", thickness 50 mm, dimensions 1 x 1 m, manufactured date on 9.2.2023
755200287/4	Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 50 mm, dimensions 1 x 1 m, manufactured date on 9.2.2023

The test samples were registered under registration number 783502330/1 and /2.

The number of the test samples sent was as follows:

783502330/3	Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 4 mm, dimensions 1 x 1 m
783502330/4	Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL", thickness 4 mm, dimensions 1 x 1 m

**2.5 Place and date of testing**

- Institut pro testování a certifikaci (ITC), a.s., Zlín, accredited test laboratory No. 1004 (April 2020, February 2023)
- Institut pro testování a certifikaci (ITC), a.s., CSI division - Centrum stavebního inženýrství Zlín - Louky, accredited test laboratory No.1007.4 (February - March 2023)

**2.6 Test results**

**2.6.1 Ignitability results - ČSN EN ISO 11925-2**

Table 1. Ignitability test results - surface flame attack, lengthwise direction (direction A):  
Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
thickness 50 mm, sample No. 755200287/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	No	Yes	No	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 2. Ignitability test results - surface flame attack, crosswise direction (direction B):  
Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
thickness 50 mm, sample No. 755200287/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	No
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 3. Ignitability test results – edge flame attack, lengthwise direction (direction A):  
Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
thickness 50 mm, sample No. 755200287/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	No	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 4. Ignitability test results - edge flame attack, crosswise direction (direction B):  
Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
thickness 50 mm, sample No. 755200287/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 5. Ignitability test results - surface flame attack (side PETZ foil), lengthwise direction (direction A):  
Construction insulation roll double-sided laminated on one side with AL foil and on the other  
side with PETZ foil "combined", thickness 50 mm, sample No. 755200287/4

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	No	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

**Table 6. Ignitability test results - surface flame attack (side PETZ foil), crosswise direction (direction B): Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 50 mm, sample No. 755200287/4**

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	No	No	No	No
Burning time to reach 150 mm	s	152	-	-	-	-
Ignition of the filter paper Yes/No	-	Yes	No	No	No	No

**Table 7. Ignitability test results - edge flame attack (side PETZ foil), lengthwise direction (direction A): Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 50 mm, sample No. 755200287/4**

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	No	No	No	No
Burning time to reach 150 mm	s	50	-	-	-	-
Ignition of the filter paper Yes/No	-	Yes	No	No	No	No

**Table 8. Ignitability test results - edge flame attack (side PETZ foil), crosswise direction (direction B): Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 50 mm, sample No. 755200287/4**

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	Yes	No	No	No
Burning time to reach 150 mm	s	-	89	-	-	-
Ignition of the filter paper Yes/No	-	No	Yes	No	No	No

Table 9. Ignitability test results - surface flame attack, lengthwise direction (direction A):  
 Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
 thickness 4 mm, sample No. 783502330/4

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	No	No	No	No	No
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 10. Ignitability test results - surface flame attack, crosswise direction (direction B):  
 Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
 thickness 4 mm, sample No. 755200287/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	No	No	No	No	No
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	No	No	No
Burning time to reach 150 mm	s	-	-	-	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 11. Ignitability test results – edge flame attack, lengthwise direction (direction A):  
 Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
 thickness 4 mm, sample No. 783502330/4

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	Yes	Yes	Yes	Yes
Burning time to reach 150 mm	s	7	6	5	7	5
Ignition of the filter paper Yes/No	-	No	Yes	Yes	Yes	No

**Table 12. Ignitability test results – edge flame attack, crosswise direction (direction B):**  
 Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL",  
 thickness 4 mm, sample No. 783502330/4

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	Yes	No	Yes	No
Burning time to reach 150 mm	s	12	6	-	7	-
Ignition of the filter paper Yes/No	-	Yes	No	No	No	No

**Table 13. Ignitability test results - surface flame attack (side PETZ foil), lengthwise direction (direction A):**  
 Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 4 mm, sample No. 783502330/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	Yes	Yes	Yes	Yes
Burning time to reach 150 mm	s	21	20	20	18	19
Ignition of the filter paper Yes/No	-	No	No	No	No	No

**Table 14. Ignitability test results - surface flame attack (side PETZ foil), crosswise direction (direction B):**  
 Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 4 mm, sample No. 783502330/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	Yes	Yes	Yes	Yes
Burning time to reach 150 mm	s	18	20	19	18	21
Ignition of the filter paper Yes/No	-	No	No	No	No	No



Table 15. Ignitability test results - edge flame attack (side PETZ foil), lengthwise direction (direction A): Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 4 mm, sample No. 783502330/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	Yes	Yes	Yes	Yes	Yes
Burning time to reach 150 mm	s	19	20	19	20	20
Ignition of the filter paper Yes/No	-	No	No	No	No	No

Table 16. Ignitability test results - edge flame attack (side PETZ foil), crosswise direction (direction B): Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 4 mm, sample No. 783502330/3

Characteristic	Unit	Result / test specimen No.				
		1	2	3	4	5
Ignition of the test specimen Yes/No	-	Yes	Yes	Yes	Yes	Yes
Flame reaching of a mark in distance of 150 mm Yes/No	-	No	No	Yes	No	No
Burning time to reach 150 mm	s	-	-	36	-	-
Ignition of the filter paper Yes/No	-	No	No	No	No	No

### 2.6.2 Results of the reaction to fire classification – ČSN EN 13501-1:2019

Table 17. Reaction to fire classification: Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL"

Fire behaviour		Smoke production			Flaming droplets	
F	-	s	not classified	,	d	not classified

**Reaction to fire classification: F**

Table 18. Reaction to fire classification: Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined"

Fire behaviour		Smoke production			Flaming droplets	
F	-	s	not classified	,	d	not classified

**Reaction to fire classification: F**

### 2.6.3 Thermal conductivity results - ČSN EN 12667

Table 19. Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL" thickness 8 mm, sample No. 755200287/1

Characteristic	Measuring unit	Medium temperature	Test result	Uncertainty <sup>1)</sup>
Thermal conductivity [ $\lambda$ ]	W/(m·K)	- 5,18 °C	0,0373	3,5 %
		-0,14 °C	0,0380	
		+10,05 °C	0,0388	
		+14,82 °C	0,0397	
		+24,82 °C	0,0407	
		+35,01 °C	0,0423	

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

### 2.6.4 Width and thickness measurement results - ČSN EN 822 a ČSN EN 823

Table 20. Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL" thickness 8 mm, sample No. 755200287/1

Characteristic	Measuring unit	Individual values	Test result	Uncertainty <sup>1)</sup>
Width	mm	103; 104; 104; 104	104	1
Thickness	mm	8; 8; 8; 8	8	1

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

Table 21. Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 8 mm, sample No. 755200287/2

Characteristic	Measuring unit	Individual values	Test result	Uncertainty <sup>1)</sup>
Width	mm	106; 105; 106; 106	106	1
Thickness	mm	8; 8; 8; 8	8	1

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

### 2.6.5 Short-term water absorption by partial immersion results - ČSN EN ISO 29767, method B

Table 22. Construction insulation roll double-sided laminated on both sides with AL foil "2 x AL" thickness 8 mm, sample No. 755200287/1

Characteristic	Measuring unit	Individual values	Test result	Uncertainty <sup>1)</sup>
Water absorption $W_P$	kg/m <sup>2</sup>	0,07; 0,06; 0,08; 0,06	0,07	0,02

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

Table 23. Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 8 mm, sample No. 755200287/2

Characteristic	Measuring unit	Individual values	Test result	Uncertainty <sup>1)</sup>
Water absorption $W_P$	kg/m <sup>2</sup>	0,07; 0,06; 0,09; 0,06	0,07	0,02

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

### 2.6.6 Rate of release of corrosive substances results – quantities of water soluble chloride ions and the pH-value - ČSN EN 13468

Table 24. Construction insulation roll double-sided laminated on one side with AL foil and on the other side with PETZ foil "combined", thickness 8 mm, sample No. 755200287/2

Characteristic	Measuring unit	Test result	Uncertainty <sup>1)</sup>
Quantities of water soluble chloride ions	mg/kg	< 5 <sup>2)</sup>	0,02
pH-value	-	6,2	0,4

Note: <sup>1)</sup> – expanded uncertainty for coverage factor  $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %

2) – the "<" symbol indicates the quantification limit of the method

### 3. Conclusions NB 1023

**Notified Body NB 1023 has carried out the testing in accordance** with the paragraph 1.4 of Annex V to the Regulation (EU) No 305/2011, as amended for the product specified in the Art. 2.3 of this Report **and concluded that**

all requirements of this paragraph of the above Regulation and the relevant harmonized standard have been met and this report may be issued as a basis for affixing CE marking to this product.

*This Report is applicable only to products identically marked and named, such as those which were the subject to testing, provided that the products characteristics have not been changed or no significant changes in their production (materials, technology, manufacturing equipment, etc.) have been done.*

### 4. List of documents used to elaborate the Report of assessment of performance

- Application No. 755200287 for assessment of CE-marked construction products
- ČSN EN 14313+A1:2013 (EN 14313:2009+A1:2013): Tepelně izolační výrobky pro zařízení budov a průmyslové instalace – Průmyslově vyráběné výrobky z polyethylenové pěny (PEF) – Specifikace (Thermal insulation products for building equipment and industrial installations – Factory made polyethylene foam (PEF) products - Specification)
- Classification Report using Results of Reaction to Fire No. 755200287K/2023, elaborated by Institut pro testování a certifikaci (ITC), a.s. CSI division - Centrum stavebního inženýrství Zlín, on 27/03/2023
- Test Report of accredited laboratory, reference No. 755200287-01, elaborated by ITC a.s., Zlín, accredited test laboratory No. 1004, in Zlín, on 27/02/2023
- Test Report of accredited laboratory, reference No. 755200287-02, elaborated by ITC a.s., Division CSI, Zlín – Louky, accredited test laboratory No. 1007.1, in Zlín, on 27/03/2023
- Test Report of accredited laboratory, reference No. 755200287-03, elaborated by ITC a.s., Division CSI, Zlín – Louky, accredited test laboratory No. 1007.1, in Zlín, on 28/02/2023
- Test Report of accredited laboratory, reference No. 755200287-04, elaborated by ITC a.s., Zlín, accredited test laboratory No. 1004, in Zlín, on 23/02/2023
- Test Report of accredited laboratory, reference No. 783502330-03, elaborated by ITC a.s., accredited laboratory No. 1004, in Zlín, on 28/04/2020
- Technical sheet of product
- Installation instruction