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CZŁONEK EOTA i UEAtc

NATIONAL TECHNICAL ASSESSMENT
ITB-KOT-2019/0926 Edition: 1

This National Technical Assessment has been issued in compliance with the Regulation by the Minister of Infrastructure and Construction of 17 November 2016 on the national technical assessments (Journal of Laws of 2016, item 1968) by the Building Research Institute [Instytut Techniki Budowlanej] in Warsaw on application by:

ALUFOX Witold Symonajć
ul. Lubelska 27, 10-406 Olsztyn

The National Technical Assessment ITB-KOT-2019/0926 Edition 1 represents positive performance assessment of the following construction product for the intended application:

ALUFOX thermal insulation mat

Validity date of the National Technical Assessment:
28 June 2024.

DIRECTOR
of the Building Research Institute

Dr Eng. Robert Geryło

Round seal with the national Emblem of the Republic of Poland:
The Building Research Institute

Warsaw, 28 June 2019.

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1. TECHNICAL DESCRIPTION OF THE PRODUCT

This National Technical Assessment covers ALUFOX thermal insulation mat (product type designation), manufactured by ALUFOX Witold Symonajć, Lubelska 27, 10-406 Olsztyn, in the production plant in Olsztyn.

ALUFOX is the product consisting of two linings of polyethylene film coated with the 35 μm thick layer of aluminium and the polyethylene foam core. The mat thickness is 5 mm and the width 120 cm. The mats are delivered in rolled up sections of 50 m in length. Mats of other widths and lengths can be manufactured on agreement between the manufacturer and buyer.

ALUFOX thermal insulation mat is delivered in the form of rolled up ribbon.

The identification characteristics of the thermal insulation mat ALUFOX are given in Annex A.

2. INTENDED PRODUCT APPLICATION

ALUFOX thermal insulation mat is intended for application as thermal insulation in thermal insulation air gaps, in roofs, frame walls on the internal side and in full walls. The mat may also be applied as the external reflecting layer improving thermal insulation of products positioned under the mat.

ALUFOX thermal insulation mat may be applied as thermal insulation in floors with floor heating on condition that the heating system temperature does not exceed 50 °C.

ALUFOX thermal insulation mat functions as the vapour tight insulation.

Applying ALUFOX thermal insulation mat, the air gap of at least 20 mm on both sides of the mat should be provided. The mat is laid on the butt and fastened to the base with staples, silicone glue or mechanical connectors.

The connections, overlaps and places of fastening the mat should be tightened using the metalized PP tape or aluminium tape. To maintain the required gap width, battens should be installed on both sides of the mat to provide the distance of at least 20 mm on each side.

In case of roofs thermal insulation (according to drawing B1), the mat should be laid in belts with 100 mm overlap fastening it to the counter rafters with staples.

In case of frame walls thermal insulation (according to drawing B2), the mat should be laid on the internal side fastening it to the bearing structure of plasterboard retaining air gaps of at least 20 mm on each side.

In case of full walls thermal insulation (according to drawing B3) the wooden or steel substructure should be made for mechanical fastening of the mat, with 60 cm spacing. The mat should be laid so that the joints (overlaps) are positioned on the substructure.

Positioning the mat in floors the mat should be laid in the way eliminating its mechanical damage. The floor should be laid in the way limiting walking over the mat to minimum (e.g. spread the mat gradually with the progress of floor placing works). Before laying the mat, all wet works in the room should be completed. The base prepared for laying the mat should be clean, even, levelled and seasoned to achieving the strength parameters defined in the design documentation.

The thermal resistance calculated value of ALUFOX thermal insulation mat positioned inside the air gap (in the setup with two air gaps 20 mm wide each) at the temperature of 10 °C is:

- 0.96 m2-K/W – in case of horizontal heat flow,
- 0.63 m2-K/W - in case of vertical heat flow upwards.

The application scope of the product covered by the National Technical Assessment should result from its performance characteristics given in point 3.

ALUFOX thermal insulation mat covered by this National Technical Assessment should be applied according to the technical design drafted for the specific object considering:

- the Polish standards and technical-construction regulations, in particular of the Regulation by the Minister of Infrastructure of 12 April 2002 on technical conditions that should be satisfied by buildings and their positioning (Dz. U. of 2019, item 1065)
- the provisions of this National Technical Assessment,
- the application manual drafted and supplied to buyers by the manufacturer.

3. PERFORMANCE CHARACTERISTICS OF THE PRODUCT AND METHODS APPLIED FOR ASSESSMENT OF THEM

3.1. Performance characteristics of the product

The performance characteristics of the ALUFOX thermal insulation mat are given in Table 1.

Table 1

No.	Basic characteristics	Performance characteristics	Assessment methods
1	*2*	3	4
1	Maximum tensile force of 50 mm wide strip, N:		PN-EN 12311-2:2013
	- through	300	
	- across	400	
2	Extension at maximum force, %:		
	- through	75	
	- across	15	
3	Shear Strength of the joint at (23 - ± 2) ºC, N/50 mm:		PN-EN 12317-2:2010 speed: 100 mm/min.; distance between handles: 200 mm
	- overlap along	115	
	- overlap across	95	
4	Tear strength (nail), N:		PN-EN 12310-1:2001
	- through	25	
	- across	40	

Table 1, continued

No.	Basic characteristics	Performance characteristics	Assessment methods
1	*2*	*3*	*4*
5	Thermal resistance of the mat at 100 ºC, declared value, m^2 KW	0,15	N-DE 12667:2002
6	Maximum temperature of application, determined by a change at 50 °C:		14706:2013
	- appearance	none	
	- thickness		
7	Emissivity	0,15	p. 3.2.1
[1)] 100 mm wide overlapping joint sealed with PP metallized tape or aluminium tape			

3.2 Methods used for assessment of performance characteristics

The methods used to assess the performance are given in Table 1 and in point 3.2.1.

3.2.1 Emissivity. Emissivity testing. The mat emissivity testing should be performed with the emissivity tester determining the total emissivity in half-space by differential method of measuring the radiation temperature of the surrounding and the tested mat heated by the heat source to auf 80 °C and comparison of the results obtained with the standard sample with known emissivity. The test should be performed on 5 mat samples. The emissivity tester should assure measurement accuracy not lower than 0.01. The emissivity determination can be performed with the device operating based on the radiation spectrometric analysis method.

4. PACKAGING, TRANSPORT AND STORAGE AS WELL AS PRODUCT MARKING METHOD

ALUFOX thermal insulation mat should be delivered in the original manufacturer's packages assuring that its technical characteristics remain unaltered.

ALUFOX thermal insulation mat may be transported by any means of transport in the way protecting the packaging against mechanical damage according to the manufacturer's instructions.

ALUFOX thermal insulation mat should be stored in dry, ventilated rooms, away from heating devices, in the way assuring storage safety and that its technical characteristics remain unaltered.

The method of products marking with the construction mark should be consistent with the Regulation by the Minister of Infrastructure and Construction of 17 November 2016 on the manner of declaring the functional properties of construction products and the manner of marking them with the construction mark. (Journal of Laws of 2016, item 1966 as later amended).

The product marking with the construction mark should be accompanied by the following Information:

- two last digits of the year during which the construction mark was first placed on the construction product,
- manufacturer's name and registered office address or the mark allowing clear identification of the manufacturer's name and registered office address,
- name and type designation of the construction product,

- number and year of issue of the National Technical Assessment according to which the performance characteristics have been declared (ITB-KOT-2019/0926 Edition 1),
- number of the national declaration of performance characteristics,
- level and class of the declared performance characteristics,
- manufacturer's website address if the national declaration of performance characteristics is made available on it.

Together with the national declaration of performance characteristics, the safety characteristics and/or information on hazardous substances in the construction product as defined in Articles 31 or 33 of the Regulation (EC) No 1907 / 2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, should be provided or made available in appropriate cases.

Moreover, the marking of a construction product containing a mixture of hazardous substances according to the REACH regulation should be consistent with the requirements of the Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, label ling and packaging of substances and mixtures (CLP), amending and repealing Directives 67/548/ EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006.

5. ASSESSMENT AND VERIFICATION OF THE PERFORMANCE CHARACTERISTICS STABILITY

5.1. National system for assessment and verification of performance characteristics stability

In compliance with the Regulation by the Minister of Infrastructure and Construction of 17 November 2016 on the manner of declaring the performance characteristics of construction products and the manner of marking them with the construction mark (Journal of Laws of 2016, item 1966, as later amended), system 3 for assessment and verification of performance characteristics stability applies.

5.2 Type testing

The performance characteristics assessed in point 3 represent the product type testing as long as no change of raw materials, components, production line or production plant take place.

5.3 Plant production control

The manufacturer should have implemented a system for plant production control in the production plant. All the elements, requirements and provisions of that system adopted by the manufacturer should be documented in a systematic manner in the form of rules and procedures, including records from performance of tests. The plant production control should be adapted to the production technology and ensure maintenance of the declared performance characteristics of the product in serial production.

The plant production control includes specification and verification of raw materials and ingredients, inspection and testing during the manufacturing process and control tests (according to point 5.4) carried out by the manufacturer in accordance to the set testing plan and according to the principles and procedures laid down in the documentation of plant production control.

The results of production control should be systematically recorded. The records of the register should confirm that the products meet the criteria for assessment and verification of constancy of performance characteristics. Individual products or batches of products and related manufacturing details must be fully identifiable and traceable.

5.4 Control tests

5.4.1 Testing programme. The testing programme covers:

a) current tests,
b) periodic tests.

5.4.2 Current tests. The current tests cover checks of the:

a) external appearance,
b) width,
c) surface mass.

5.4.3 Periodic tests. The periodic tests cover verification of the:

a) maximum tensile strength,
b) relative elongation at maximum tensile force,
c) thermal resistance at 10 ºC.

5.5 Testing frequency

Current tests should be conducted according to the established test plan, but not less frequently than for each batch of products. The batch size of products should be specified in the documentation of plant production control.

Periodic tests should be conducted at least once every 3 years.

6. INSTRUCTION

6.1 The National Technical Assessment ITB-KOT-2019/0926 Edition 1 is the positive assessment of the functional properties of those essential characteristics of the ALUFOX thermal insulation mat, which in accordance with the intended use, resulting from the provisions of the Assessment, have an impact on the fulfilment of basic requirements by the building structures in which the product will be applied.

6.2 The National Technical Assessment ITB—KOT—2019/0926 Edition 1 is not a document authorizing marking a construction product with the construction mark.

Pursuant to the Act on Construction Products of 16 April 2004, as later amended (Journal of Laws of 2019, item 266), the product to which this National Technical Assessment applies may be marketed or made available on the domestic market, if the manufacturer has assessed and verified the performance characteristics stability, drawn up the national declaration of performance characteristics in accordance with the National Technical Assessment ITB— KOT—2019/0926 Edition 1 and marked the products with the construction mark in compliance with the applicable regulations.

6.3. The National Technical Assessment ITB—KOT—2019/0926 Edition 1 does not infringe the rights resulting from the regulations on protection of industrial property, in particular the Act of 30 June 2000 — Industrial Property Law (Journal of Laws of 2017, item 776, as later amended) . Ensuring these rights is the responsibility of the users of this National Technical Assessment issued by the Building Research Institute.

6.4. Issuing a National Technical Assessment, the Building Research Institute shall not be held responsible for any possible infringement of exclusive and acquired rights.

6.5. The National Technical Assessment does not exempt the manufacturer of products from responsibility for their appropriate quality, and the contractors of construction works from responsibility for their appropriate use.

6.6. Validity of the National Technical Assessment may be extended for further periods not exceeding 5 years.

7. LIST OF DOCUMENTS USED IN THE PROCEEDINGS

7.1 Reports, test reports, evaluations, classifications

1) IZMO0-00719/18/ZOONISM. Test report. Building Elements Engineering Department of the Building Research Institute. Warsaw 2018
2) LZFOO-00824/18/ZOONZF. Test report. Thermal Physics, Acoustics and Environment Department of the Building Research Institute. Warsaw 2018
3) LZFOO-00771/19/ZOONZF. Test report. Thermal Physics, Acoustics and Environment Department of the Building Research Institute. Warsaw 2019
4) IM00-2455/12/ZOONISM. Report from tests of ALUFOX thermal insulation mat. Building Materials Laboratory of the Building Research Institute. Warsaw 2012
5) NF-0582/A/2006 (LF-59/2006). Tests of thermal resistance and emissivity of ALUFOX thermal insulation mat. Thermal Physics Department of the Building Research Institute. Warsaw 2006
6) LH-1187/Fm/06 Report from tests of ALUFOX thermal insulation mat. Waterproofing Protections Laboratory of the Building Research Institute. Warsaw 2006

7.2 Standards and related documents

PN-EN 12311-2:2013	*Flexible sheets for waterproofing. Determination of tensile properties. Part 2: Plastic and rubber sheets for roof waterproofing*
PN-EN 12317-2:2010	*Flexible sheets for waterproofing - Determination of shear resistance of joints - Part 2: Plastic and rubber sheets for roof waterproofing*
PN-EN 12310-1:2001	*Flexible sheets for waterproofing - Part 1: Bitumen sheets for waterproofing - Determination of resistance to tearing (nail shank)*

PN-EN 12667:2002	*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*
PN-EN 12939:2002	*Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Thick products of high and medium thermal resistance*
PN-EN ISO 10456:2009	*building materials and products – Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values*
PN-EN 14706:2013	*Thermal insulating products for building equipment and industrial installations - Determination of maximum service temperature*
PN-EN 1848-2:2003	*Flexible sheets for waterproofing - determination of length, width, straightness and flatness - Part 2: Plastic and rubber sheets for roof waterproofing.*
PN-EN 1849-2:2010	*Flexible sheets for waterproofing - Determination of thickness and mass per unit area - Part 2: Plastic and rubber sheets for roof waterproofing*
AT 15-.7151/2012	*ALUFOX thermal insulation mat*

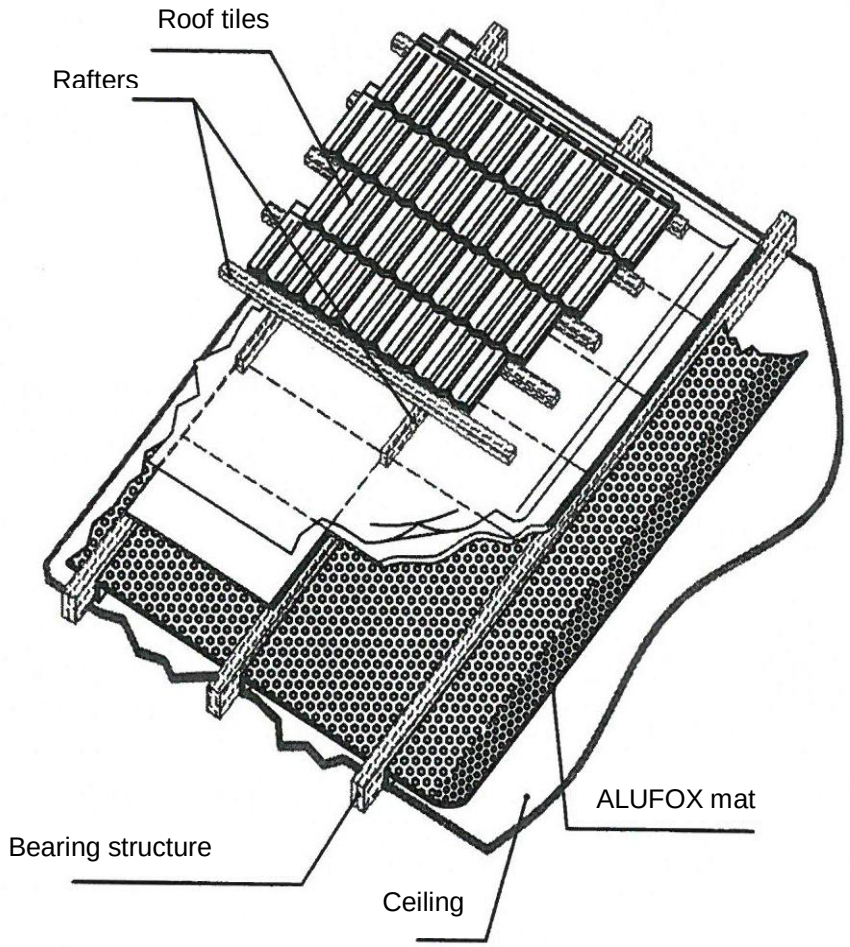
ANNEXES

Annex A

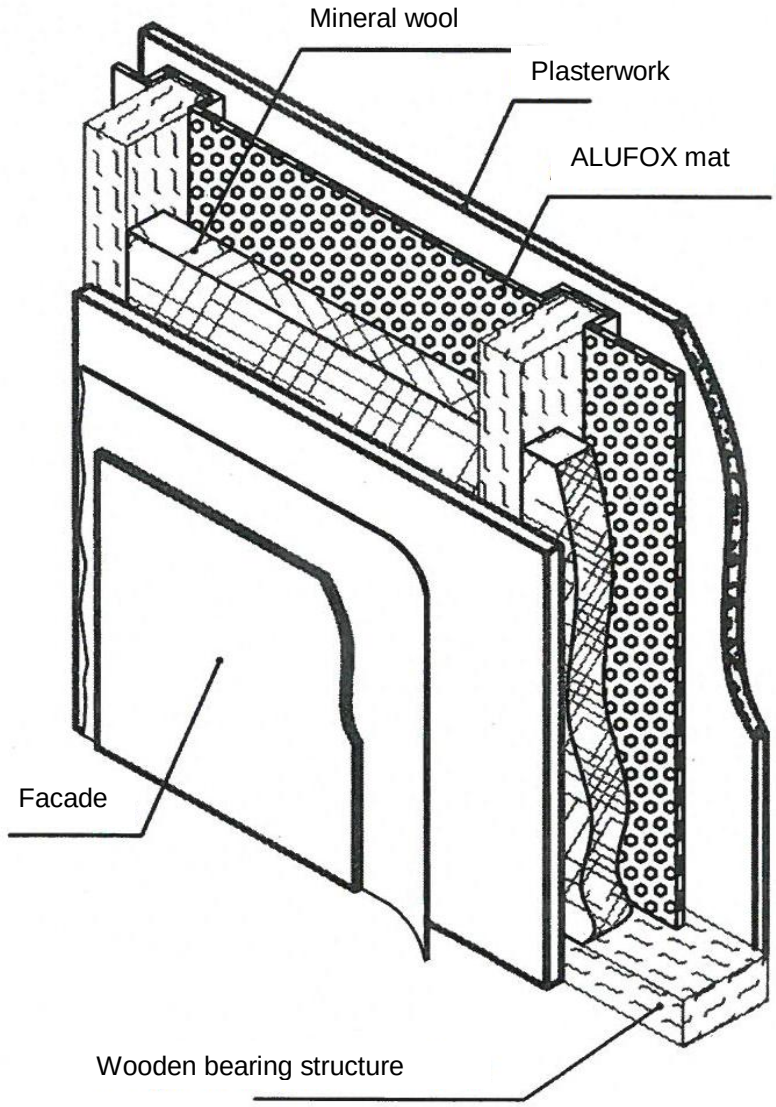
Table AI. Identification characteristics of the ALUFOX thermal insulation mat

No	Characteristics	Requirements	Testing method
1	*2*	*3*	*4*
1	External appearance	Mat in the form of ribbon according to the description in point 1; without visible defects and mechanical damages	Visual evaluation
2	Width, mm	1200 ± 5%	PN-EN 1848-2:2003
3	Surface mass, g/m^2	230 ± 5%	PN-EN 1849-2:2010

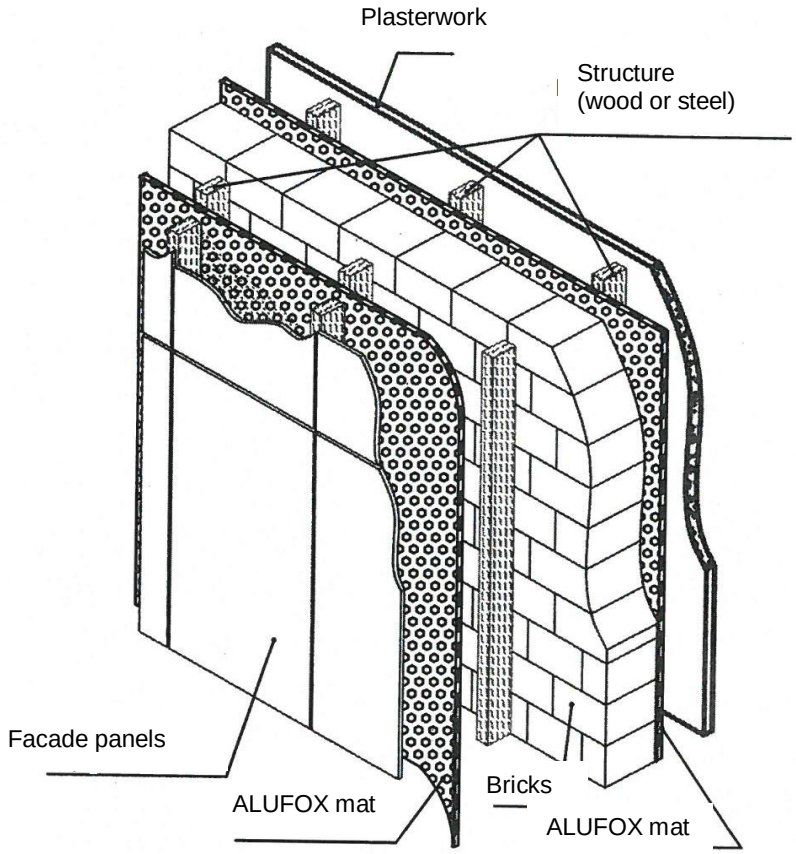
Annex B



Drawing B1 Example of ALUFOX thermal insulation mat in case of roofs



Drawing B2. Example of ALUFOX thermal insulation mat in case of frame walls



Drawing B3. Example of ALUFOX thermal insulation mat in case of full walls