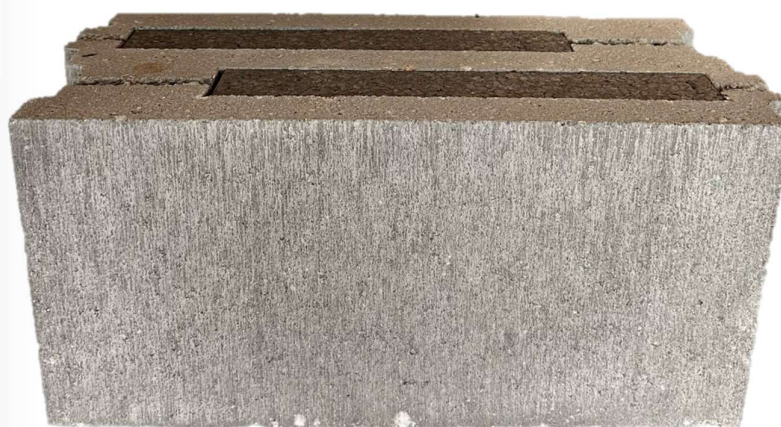


Tekno Amer Blok

**ENVIRONMENTAL PRODUCT
DECLARATION No. 03-04/2024**

**Thermal construction blok –
TermoAmerWall 17.8**



STRUCTURES

FACADES

FENCES

Declaration owner:

TeknoAmerBlok Sp. z o.o.

Program owner:

Łukasiewicz – Institute of Ceramics and
Building Materials

Program Name

Center for Environmental Engineering
Environmental Product Declaration – B2B

Date of issue:

29.04.2024

Declaration valid until:



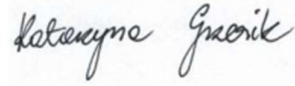
29.04.2029



1. INFORMACJE OGÓLNE

<p>Declaration owner: TeknoAmerBlok Sp. z o.o.</p>	<p>Products covered by the declaration: Thermal construction block – TermoAmerWall 17,8</p>
<p>Program owner: Łukasiewicz Institute of Ceramics and Building Materials Center for Environmental Engineering Opole http://www.icimb.pl/opole/</p>	<p>Declaration owner: TeknoAmerBlok Sp. z o.o. 3 Generała Sikorskiego str 05-191 Nasielsk Telefon: +48 22 614 96 63 Adres e-mail: sprzedaz@teknoamerblok.pl https://teknoamerblok.pl/pl/</p>
<p>Release Date: 29.04.2024</p>	<p>Declared unit: The declared unit (DU) for the products in declaration is 1 kg (1 kilogram) of Thermal construction blok – TermoAmerWall 17,8</p>
<p>Declaration valid until: 29.04.2029</p>	<p>Scope: The declaration covers the product: Thermal construction block - TermoAmerWall 17.8 manufactured at the TeknoAmerBlok Sp. z o. o. plant. Stare Pieścirogi, 3 Generała Sikorskiego str, 05-191 Nasielsk. Contains information about the impact of the declared product on the environment. All data regarding the production cycle were collected by TeknoAmerBlok Sp. z o. o. from the period from November 1, 2022 to October 31, 2023 (12 months) and correspond to the production technology at that time. The life cycle assessment has been developed in accordance with the requirements of the PN-EN ISO 15804+A2:2020, PN-EN ISO 14025 and PN-EN ISO 14040 standards. The product categorization rules were adopted in accordance with with the PN-EN 15804 and PN-EN 16757 standards. The owner of the declaration is responsible for the underlying information and evidence. Łukasiewicz - Institute of Ceramics and Building Materials is not responsible for the manufacturer's information, data and evidence regarding life cycle assessment. Declarations that are the result of different programs or are not performed in accordance with the standard may not be comparable.</p>
<p>Product categorization rules (PCR)</p>	<p>According to the standard: PN-EN 15804+A2:2020-03 Sustainability of construction works. Environmental product declarations. Basic principles of categorization of construction products. PN-EN 16757:2017 Sustainable nature of construction works. Environmental product declarations. Principles of Product Categorization for concrete and products from concrete.</p>



Representativeness:	Polish product, year 2022 - 2023
Declared durability:	50 years
Reasons for performing LCA:	B2B
Life Cycle Analysis (LCA):	LCA analysis covers modules A1-A3, A4, A5, C1-C4 and D in accordance with the PN-EN 15804+A2 standard (cradle-to-gate with options)
Łukasiewicz Institute of Ceramics and Building Materials, provides access to the type III environmental declaration for the thermal construction block - TermoAmerWall 17,8 from TeknoAmerBlok Sp. z o. o. to interested parties.	
<p>Authors' team: Katarzyna Kiprian, M.Sc. Ewa Głodek-Bucyk Ph.D. Patrik Okoń M.Sc.</p> <p>Approved: Joanna Poluszyńska, Ph.D.</p>  <p>Director of the Center for Environmental Engineering</p> <p>Ewa Głodek-Bucyk, Ph.D.</p>  <p>Leader of the Process Engineering Research Group</p>	<p>Verification:</p> <p>CEN standard PN-EN 15804+A2 serves as the main PCR document.</p> <p>Independent verification of declarations and data according to EN ISO 14025:2010</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p>  <p>Katarzyna Grzesik, Ph.D, DSc</p>



2. MANUFACTURER AND PRODUCT INFORMATION

TeknoAmerBlok Sp. z o.o. was established as a result of the merger of TeknoBlok and AmerBlok companies existing since the early 1990s. For this reason, it has many years of experience in the production of concrete elements intended for facades, walls with increased fire and acoustic insulation, as well as all other types of masonry structures. TeknoAmerBlok has two professional plants in Nasielsk and Sierakowice and a headquarters located in Warsaw. The company specializes in concrete structural and façade elements, but also in innovative fencing systems and special concrete elements. TermoAmerWall thermal construction blocks are designed for lightweight walls dedicated to buildings designed for high thermal insulation and acoustic insulation of rooms. They are also characterized by high fire resistance and guarantee safety for residents. The approximate composition of TermoAmerWall is shown in the table below:

Table 1 Indicative composition of the product covered by the declaration

Materials	Mass share [%]
Cement	9-13
Kruszywo 0-2	44-50
Kruszywo 2-8	30-36
Woda	3-4
Popiół	5-8
Domieszka	0,08-0,1
Styropian	0,37

The production of TermoAmerWall thermal construction blocks begins with the acceptance of cement and ash into silos on the premises of the plant, as well as aggregates. The individual components of the mixture (cement, aggregate, ash, water, additives) are directed to the mixer according to the recipe, from which the concrete is obtained. The finished concrete goes to the block making machine, from which the hollow bricks are obtained. Through a transport line, fresh hollow bricks are placed in ripening rooms, where the right temperature is maintained. After an appropriate time, polystyrene inserts are placed in the maturing room, which have previously been cut out of polystyrene blocks. The finished TermoAmerWall product, after passing through quality control, is placed on the packaging line and then redirected to the warehouse.

The technological diagram is shown in Figure 1

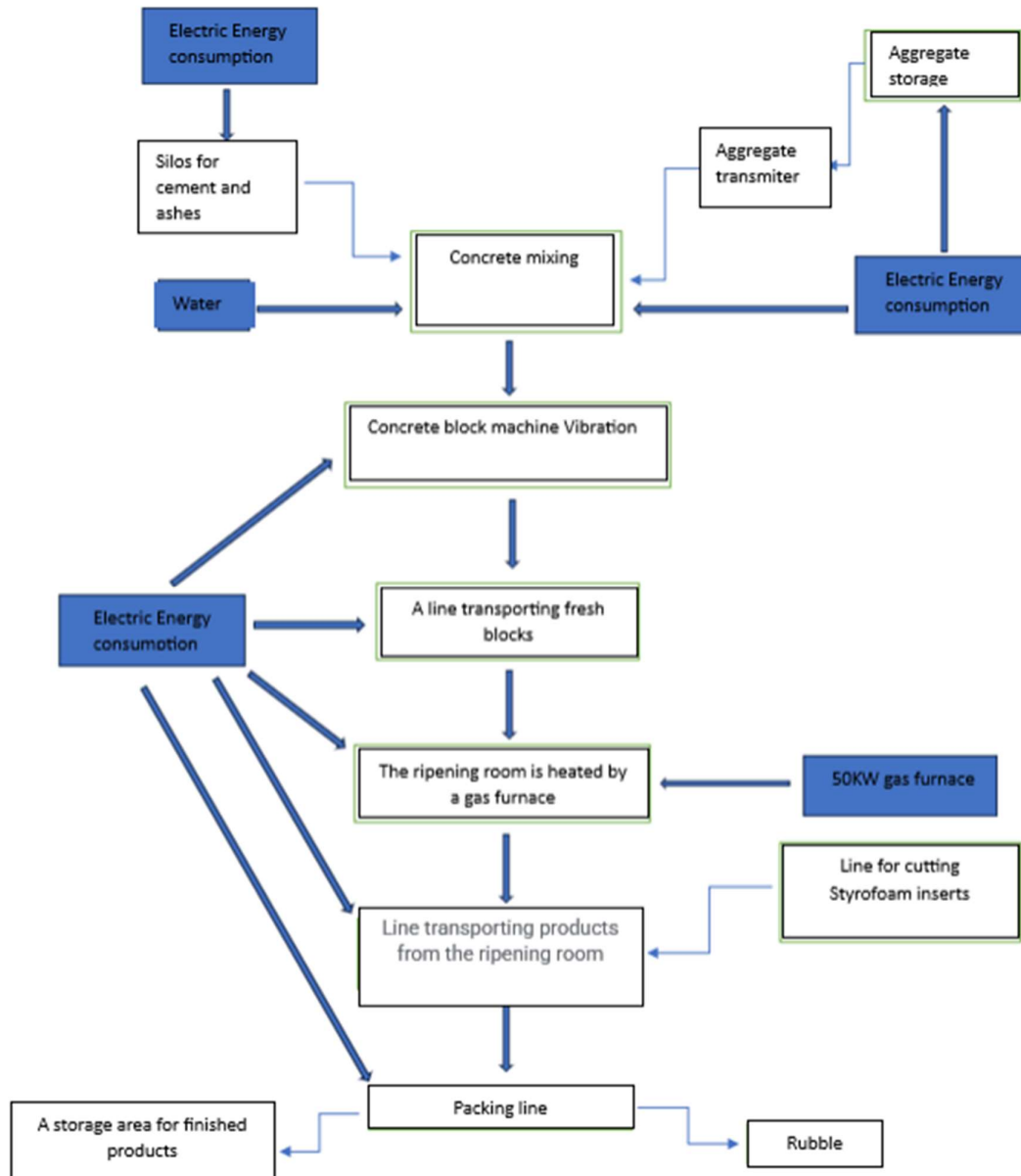


Figure 1: Diagram of the production process of thermal construction block TermoAmerWall at the TeknoAmerBlok Sp. z o.o. plant in Nasielsk.

An overview diagram of the thermal construction block TermoAmerWall 17,8 is shown in Figure 2. The basic parameters are presented in Table 2

Declared dimensions

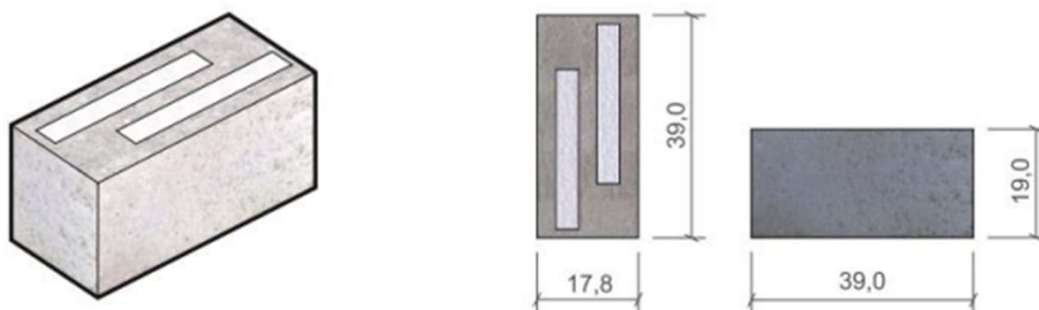


Figure 2 Schematic diagram of a thermal construction block TermoAmerWall 17,8.

Table 2 Basic properties of thermal construction block TermoAmerWall 17,8.

TermoAmerWall 17,8	
Compressive strength	20 MPa
Fire insulation	REI 240
Acoustic insulation	R _w =58 dB R _{A1} =57 dB R _{A2} =55 dB
Heat transfer coefficient	For unplastered walls: U=0,985 W/m ² ·K For walls plastered with gypsum plaster gr. 10 mm: U=0,952 W/m ² ·K
Dimensions	390x190x178 mm
Mass	19,8 kg

Application of TermoAmerWall 17,8:

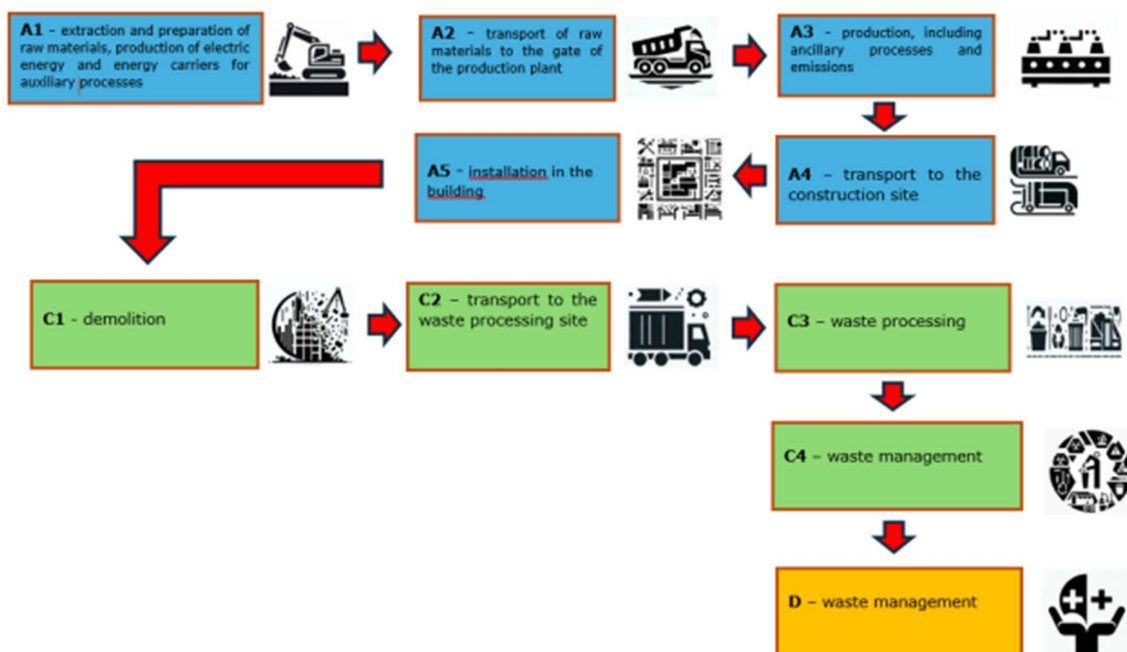
- Walls separating the staircase in multi-family buildings
- Inter-apartment walls of multi-family buildings
- Infill walls
- External walls of buildings



3. LCA: RULES OF CALCULATIONS

System limitations

The life cycle analysis of the tested products includes modules A1-A3, A4, A5, C1-C4 and D (Cradle to Gate whit options) in accordance with PN-EN 15804.



Data collection period

Data regarding the production process come from the years 2022 - 2023 (period from November 1, 2022 to October 31, 2023).

Declared unit

The declared unit is 1 kilogram of thermal construction block TeknoAmerWall produced at the TeknoAmerBlok Sp. plant. z o. o. in Nasielsk.

Assumptions

A1 - extraction and consumption of raw materials refer to specific mass shares in the production process per declared unit of the product,

A2 - distances from the place of obtaining raw materials to the production plant, individual for each raw material, means of transport varied depending on the method of delivery of raw materials,

A3 - CO₂, NO_x, SO₂ and dust emission values from the production process obtained as a result of measurements carried out at the plant, the rest estimated on the basis of fuel consumption.

A4 - transport - data used for calculations are included in the developed scenario.

A5 - refers to energy consumption and covers all processes related to the placement and installation of concrete. Calculations are performed based on the developed scenario.

C1 - describes the treatment of construction debris during dismantling/demolition. Calculations are performed based on the developed scenario.

C2 - refers to the transportation of construction and demolition waste to a recovery or disposal facility. Calculations are performed based on the developed scenario.

C3 - takes into account the environmental impact when processing construction and demolition waste containing concrete in a waste recovery facility. Calculations are performed based on the developed scenario.

C4 - should take into account the impact of stored construction rubble containing gypsum plasters. In the developed scenario, landfill operations are not taken into account because construction rubble is not worthless waste and is subject to recycling, and should not be disposed of in municipal waste landfills.

D - concerns the impact and effects of using secondary material. Calculations are made based on about the developed scenario.

Cut-off criteria

99% of all mass streams involved in the production process were taken into account. All energy used in the process has been taken into account in the environmental declaration.

General information

Data for calculations come from Ecoinvent v. 3.9.2, KOBiZE, and available Environmental Product Declarations. Emission factors for electricity were determined using actual KOBiZE data. The emission factor used for Polish electricity (Ecoinvent supplemented with current national KOBiZE data) is 0.685 kg CO₂/kWh. A detailed analysis of data quality was part of the external audit.

Allocation

All data regarding components manufactured at TeknoAmerBlok's plant Sp. z o. o. were supplied by the manufacturer and were referred to the declared unit of the product - 1 kg of TermoAmerWall construction block. The allocation principles used in this EPD are based on general ones ICIMB-PCR A principles.

4. LCA: SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

For the life cycle analysis of products covered by the Cradle to gate with options, scenarios have been developed for modules A4, A5 and C1-C4 and D:

Module A4 – Transport to the construction site – Transport is carried out by trucks with a load capacity of 16-32 tonnes that meet the EURO 6 emission standards. The average distance from the plant to the customer is 20 km.

Module A5 – Installation in the building – Covers all processes related to the installation of hollow brick. The information provided by the producer was used to develop the script. The installation of hollow bricks is done manually by overlapping the hollow bricks with mortar in between. The mortar is mixed with a hammer drill or an electric mixer.

Module C1 - Demolition/demolition – according to the current state of the art, the disassembly of hollow brick structures is carried out with the use of excavators equipped with a hammer. An excavator with a hammer (2.9 l of fuel/m³) is used for demolition works

Module C2 – Transport – Waste is directed to the waste treatment plant. From there, after separating the recyclable fraction, the fraction for thermal processing and the fraction for storage in a landfill, their appropriate amounts are directed to further processes.

- Transport is carried out by trucks with a load capacity of 16 - 32 tons, meeting the EURO 6 emission standards,
- The material is transported to the waste management plant.
- Transport to the waste treatment plant takes place at a distance of 5 km from the demolition site.
- Transport counted there + return.

Module C3 - Waste treatment, e.g. collection of demolition fractions and treatment of material streams for reuse, recycling and energy recovery. All waste from assembly and demolition (A5 and C1) goes to the waste treatment plant. Electricity consumption per 1 kg of waste is 0.03 kWh/kg, and energy consumption for internal transport vehicles is 0.3 MJ/kg. The following processes were assumed for the calculations: unloading (loader), crushing (crusher)



Module C4 - Storage of part of the waste separated in the processing process (module C2) and thermal utilization of part of the waste fraction were assumed. As a result of thermal utilization, energy is released, which is partially recovered as heat and electrical energy. It was assumed that the average calorific value of polystyrene is 37 MJ/kg. The efficiency of heat recovery from waste incineration is 32.0%, while the efficiency of electricity production is 11.2%. The benefits of thermal waste treatment are included in module D as exported energy.

Module D - Potential for reuse of material, the benefits of thermal waste treatment (polystyrene incineration) have been taken into account here In order to obtain results for 1 m³ of thermal construction block, the values from Table 4 should be divided by the density coefficient appropriate for the TermoAmerWall 17.8 - 1630 structural thermal construction block [kg/m³]

5. LCA: WYNIKI

The table below shows the LCA modules included in the calculation of the environmental impact categories for the products covered by the declaration.

SYSTEM BOUNDARIES (X –MODULE INCLUDED IN LCA, MND – MODULE NOT DECLARED)																	
Products stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundary	
Raw material supply	Transport	Production	Transport	Construction process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X	

The following tables present the results of the LCA analysis for the thermal construction block TermoAmerWall 17,8. Explanations of the abbreviations used to describe the impact category are given below:

GWP-total
GWP-total
GWP-fossil
GWP-biogenic
GWP-luluc

Total Global Warming Potential
Total Global Warming Potential
Global Warming Potential: Fossil Fuels
Global warming potential: biogenic
Global warming potential: land use and land conversion



ODP	Stratospheric ozone depletion potential
AP	Acidification potential
EP-freshwater	Eutrophication potential of freshwater environments
EP-marine	Eutrophication potential of saltwater environments
EP-terrestrial	The potential for eutrophication of terrestrial environments
POCP	Tropospheric ozone formation potential
ADP-minerals&metals	Abiotic depletion potential of non-fossil fuels
ADP-fossil	Abiotic depletion potential of fossil fuel feedstocks
WDP	Water deprivation potential (user),
PM	Potential incidence of diseases caused by particulate emissions
IRP	Ionizing radiation (potential effectiveness of human exposure to U235)
ETP-fw	Potential Comparative Unit of Toxicity to Ecosystems
HTP-c	Potential comparative entity toxic to humans, cancer
HTP-nc	Potential comparative entity toxic to humans, non-cancer diseases
SQP	Potential soil quality indicator
PERE	Consumption of renewable energy resources, excluding renewable energy resources used as raw material
PERM	Consumption of renewable energy resources used as raw material
PERT	Total consumption of renewable, primary energy resources
PEN-RE	Consumption of non-renewable primary energy resources, excluding non-renewable primary energy resources used as feedstock
RE	Consumption of non-renewable energy resources used as a raw material
PENRT	Total consumption of non-renewable, primary energy resources
SM	Consumption of secondary materials
RSF	Consumption of renewable alternative fuels
NRSF	Consumption of non-renewable alternative fuels
FW	Fresh water consumption



Table 4 Results

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg thermal construction block											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	6,95E-02	1,31E-02	-1,04E-02	3,80E-03	1,48E-05	5,96E-03	1,76E-03	5,09E-02	2,84E-04	-1,07E-02
GWP-fossil	kg CO ₂ eq.	6,86E-02	1,31E-02	1,97E-02	3,79E-03	1,41E-05	5,95E-03	1,76E-03	4,98E-02	2,83E-04	-1,06E-02
GWP-biogenic	kg CO ₂ eq.	9,25E-04	1,23E-05	-3,01E-02	3,55E-06	6,59E-07	1,45E-06	1,65E-06	9,94E-04	7,91E-07	-8,73E-05
GWP-luluc	kg CO ₂ eq.	1,69E-05	6,36E-06	4,10E-05	1,84E-06	1,34E-08	6,58E-07	8,54E-07	2,33E-05	3,74E-08	-2,69E-06
ODP	kg CFC11 eq.	4,59E-10	2,78E-10	3,41E-10	8,04E-11	2,05E-14	9,25E-11	3,73E-11	4,77E-10	4,43E-12	-1,79E-10
AP	mol H+ eq.	2,80E-04	2,79E-05	8,74E-05	8,08E-06	6,35E-08	5,39E-05	3,75E-06	3,55E-04	2,52E-06	-7,14E-05
EP-freshwater	kg PO ₄ eq.	1,87E-05	9,09E-07	1,25E-05	2,63E-07	1,79E-08	1,78E-07	1,22E-07	2,77E-05	8,58E-09	-4,26E-06
EP-marine	kg N eq.	6,23E-05	7,03E-06	2,47E-05	2,04E-06	1,13E-08	2,50E-05	9,46E-07	1,37E-04	1,16E-06	-1,83E-05
EP-terrestrial	mol N eq.	6,80E-04	7,14E-05	2,48E-04	2,07E-05	8,69E-08	2,71E-04	9,61E-06	1,44E-03	1,26E-05	-1,91E-04
POCP	kg NMVOC eq.	1,96E-04	4,32E-05	9,04E-05	1,25E-05	2,44E-08	8,04E-05	5,82E-06	4,25E-04	3,75E-06	-7,86E-05
ADP-minerals & metals	kg Sb eq.	8,73E-08	4,19E-08	4,06E-08	1,21E-08	1,32E-11	2,03E-09	5,61E-09	2,96E-08	1,11E-10	-3,69E-09
ADP-fossil	MJ	6,57E-01	1,81E-01	2,61E-01	5,25E-02	1,46E-04	7,61E-02	2,44E-02	5,86E-01	3,62E-03	-1,02E-01
WDP	WDP (m ³) hv. equ	1,30E-02	7,57E-04	3,81E-03	2,19E-04	6,73E-07	1,68E-04	1,02E-04	1,82E-03	7,99E-06	-3,24E-04
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg thermal construction block											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1,58E-09	9,48E-10	1,08E-09	2,75E-10	1,19E-13	1,50E-09	1,28E-10	7,43E-09	7,13E-11	-1,24E-09
IRP	kBq U235 eq.	1,42E-03	2,47E-04	8,81E-04	7,10E-05	1,23E-07	3,61E-05	3,30E-05	3,58E-04	2,15E-06	-5,46E-05
ETP-fw	CTUe	1,87E-05	9,09E-07	1,25E-05	2,63E-07	1,79E-08	1,78E-07	1,22E-07	2,77E-05	8,58E-09	-4,26E-06
HTP-c	CTUh	6,39E-12	3,05E-12	3,75E-11	8,83E-13	4,98E-16	9,79E-13	4,10E-13	5,47E-12	4,66E-14	-3,20E-11
HTP-nc	CTUh	1,09E-10	4,69E-11	9,51E-11	1,36E-11	1,30E-14	2,89E-11	6,31E-12	1,59E-10	1,42E-12	-2,59E-10
SQP	-	1,47E-01	1,09E-01	2,73E+00	3,17E-02	2,53E-05	5,09E-03	1,47E-02	6,24E-02	4,48E-03	-1,54E-02
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg thermal construction block											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2,11E-02	2,87E-03	5,10E-01	8,26E-04	1,34E-05	4,34E-04	3,84E-04	2,22E-02	1,07E-04	-2,86E-03
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,11E-02	2,87E-03	5,10E-01	8,26E-04	1,34E-05	4,34E-04	3,84E-04	2,22E-02	1,07E-04	-2,86E-03
PEN-RE	MJ	7,78E-01	1,89E-01	2,46E-01	5,48E-02	1,97E-04	7,99E-02	2,54E-02	6,81E-01	3,79E-03	-1,26E-01
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	7,78E-01	1,89E-01	2,46E-01	5,48E-02	1,97E-04	7,99E-02	2,54E-02	6,81E-01	3,79E-03	-1,26E-01
SM	kg	0,00E+00	0,00E+00	1,80E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	2,44E-05	2,90E-05	3,90E-04	8,32E-06	2,88E-07	2,58E-06	3,86E-06	4,44E-04	1,27E-07	-4,93E-05



ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg thermal construction block												
Indicator	Unit (expressed per DU)	Life Cycle Stage										
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
Hazardous waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,80E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,80E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,23E-03
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,68E-02

CARBON ORGANIC

Contents organic carbon in product (kg C_{org}) **0,00E+00**

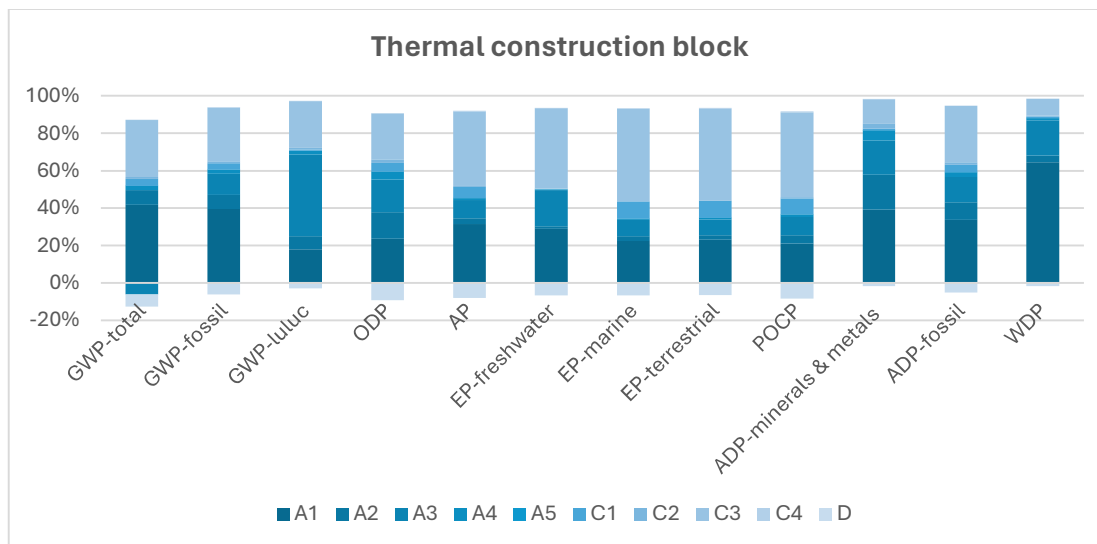
Contents organic carbon in packaging (kg C_{org}) **2,36E-02**



6. INTERPRETATION OF RESULT

Figure 2 shows a graph of the contributions of individual life cycle modules to the basic categories of the impact of the thermal construction block. TermoAmerWall:

Fig. 2 Shares of life cycle modules for the main categories of impacts –I Thermal construction block TermoAmerWal:



LITERATURE

- ✓ PN-EN ISO 14025:2014-04, Environmental labels and declarations -- Type III environmental declarations -- Rules and procedures.
- ✓ PN-EN 15804+A2:2020, Sustainability of building structures -- Environmental product declarations -Basic principles of categorization of construction products.
- ✓ PN-EN 16757:2017, Sustainability of construction works. Environmental Product Declarations. Product Categorization Rules for concrete and concrete products.
- ✓ PN-EN ISO 14040:2009 Environmental management. Life Cycle Assessment. Principles and structure.
- ✓ PN-EN ISO 14044:2009, Environmental management. Life Cycle Assessment. Requirements and guidelines.
- ✓ EN 15942:2012, Sustainability of construction works – Environmental product declarations – Communication format business-to-business.
- ✓ Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products
- ✓ Data from the company's website: www.teknoamerblok.pl

Explanatory material can be obtained by contacting a representative of TeknoAmerBlok Sp. z o.o. directly.



Łukasiewicz
Institute
of Ceramics
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PROCESS ENGINEERING RESEARCH GROUP

TYPE III ENVIRONMENTAL DECLARATION CERTIFICATE

no. 03-04/2024

Products:

**Thermal construction block -
TermoAmerWall 17,8**

Owner:

TeknoAmerBlok Sp. z o.o.

**3 Generała Sikorskiego Str.
05-191 Nasielsk**

The declaration was developed in accordance with the requirements of the standard:

PN-EN 15804+A2: 2020-03

Sustainability of construction works
Environmental product declarations
Core rules for the product category of construction products

The declaration was verified in accordance with the requirements of the standard:

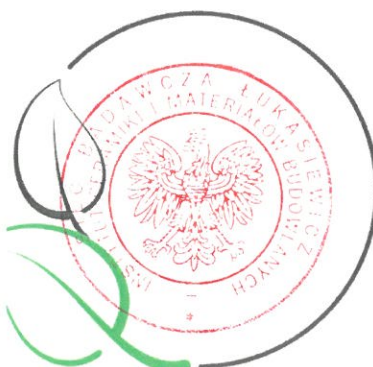
PN-EN ISO 14025:2010

Environmental labels and declarations
Type III environmental declarations. Principles and procedures

The certificate was issued for the first time on **April, 29 2024** and is valid for 5 years or until the said EPD is amended.

**Process Engineering
Research Group Leader**

Ewa Głodek-Bucyk, PhD Eng.



**Director of
Center Of Environmental
Engineering**

Joanna Poluszyńska, PhD

Opole, April 2024