Type III Environmental Product Declaration No. 978/2026

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Ceramic masonry units



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ITB is the verified member of The European Platform for EPD program operators and LCA practitioner www.eco-platform.org

Basic information

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804+A2.

Life cycle analysis (LCA): A1-A3, A4-A5, C1-C4 and D modules in accordance with EN 15804+A2 (Cradle-to-Grave with options)
The year of preparing the EPD: 2026
Product standard: EN 771-1+A1:2015-10
Service Life: 150 years for standard product
PCR: ITB-PCR A (PCR based on EN 15804+A2)
Declared unit: 1 tonne of ceramic masonry units
Reasons for performing LCA: B2B
Representativeness: Polish, European, 2024

MANUFACTURER

Leier Polska S.A., with its registered office in Wola Rzędzińska, is a business entity established through the merger of previously separate building materials production plants: Leier Polska S.A. in Wola Rzędzińska, Leier Markowicze S.A. at the brickworks in Markowicze, Leier Malbork Sp. z o.o. in Malbork, and the plant in Sierakowice. The first three plants previously belonged to Leier Baustoffe Holding GmbH, while the fourth had formerly operated within the structure of LODE Sp. z o.o. At present, the company operating under the name Leier Polska S.A., comprising the four above-mentioned plants, belongs to Leier Baustoffe Holding GmbH.



Fig. 1. Headquarters and production plant of Leier Polska S.A. in Wola Rzędzińska, Poland.

The plants in Wola Rzędzińska and Sierakowice manufacture ceramic and concrete construction products. The Markowicze plant produces ceramic products, while the Malbork plant manufactures concrete products. In addition, each of these production plants offers chimney systems, whose concrete components are manufactured in Malbork, Sierakowice and Wola Rzędzińska.

The consolidation of the plants was carried out gradually. The company reached its current organisational structure in mid-October 2016, when all four plants were merged under one name: Leier Polska S.A.

The newly consolidated company remained within the LEIER capital group and is currently one of the largest and most modern manufacturers of ceramic and concrete construction products in Poland and Central and Eastern Europe, while continuing to develop dynamically.

PRODUCTS DESCRIPTION AND APPLICATION

LEIER POLSKA S.A. offers its customers Thermopor and Thermopor Plan ceramic wall blocks. These are vertically perforated products intended for use in protected masonry (P units), for the construction of load-bearing and non-load-bearing walls. They are manufactured from fired porous clay ceramics at temperatures exceeding 900°C. The products are characterised by high thermal insulation performance, good acoustic insulation, frost resistance and fire resistance.
The full product range can be divided into two groups:

1. Thermopor blocks are intended for masonry construction using general-purpose or thermal-insulating mortar, with horizontal joints approximately 12 mm thick. Depending on the product type, vertical joints are formed as follows:
   - by means of a tongue-and-groove connection without the use of a binder — products marked P+W;
   - by filling with mortar the pocket formed at the contact between two adjacent units placed next to each other — e.g. products marked AKU M, AKU S;
   - as a vertical joint approximately 12 mm thick filled with mortar — e.g. products marked AKU 220, AKU 238.

2. Thermopor Plan blocks are intended for masonry construction using thin-layer mortar and modern ground units. Walls may be constructed in two ways: using thin-layer masonry mortar of at least class M5, compliant with EN 998-2, or using polyurethane adhesive foam for masonry works. The masonry mortar or adhesive foam is applied in the horizontal joints. Vertical tongue-and-groove joints are not filled with mortar.
3. Thermopor lintel units are a non-load-bearing, channel-shaped ceramic elements used as ceramic casing (permanent formwork) in the manufacture of Leier Strong lintel beams.

The diversity of the Thermopor product range makes it possible to adjust the performance characteristics of the products to the intended application and to customer requirements.
The technical parameters of the blocks and lintel units are provided in the table below. Other relevant information and product-related documents are available on the website www.leier.pl.

Table 1. Technical characteristics of Thermopor and Thermopor Plan ceramic blocks according to EN 771-1:2011+A1:2015

Performance characteristic		**Unit**	**Value**	
			from	**to**
Dimensions	Length	mm	250	375
	Width		80	440
	Height		220	249
Dimensional tolerances	Dimensional tolerance category	-	T1, T2, Tm	
	Range tolerance category		R1, R2, Rm	
	Flatness of bed faces	mm	NPD/≤ 0,3	
	Parallelism of bed faces		NPD/≤ 0,6	
Configuration group		-	G2, G3	
Compressive strength	Category	-	Category I units	
	Normalised compressive strength	N/mm^2	15	20
	Direction of loading	-	Perpendicular to the bed face	
Moisture expansion		-	NPD	
Bond strength, fixed value		N/mm^2	0,15	
Content of active soluble salts		-	S0	
Reaction to fire		-	A1	
Water absorption		%	NPD	
Tabulated water vapour diffusion coefficient		-	5/10	
Gross dry density		kg/m^3	660	1160
Density tolerance category		-	D1, Dm	
Thermal conductivity coefficient λ10,dry,unit		W/mK	0,154	0,307
Freeze–thaw resistance category		-	F1	
Dangerous substances		-	NPD	

Table 2. Technical characteristics of Thermopor lintel units according to EN 771-1:2011+A1:2015

Performance characteristic		**Unit**	**Value**	
			from	**to**
Dimensions	Length	mm	250	300
	Width		115	
	Height		71	
Dimensional tolerances	Dimensional tolerance category	-	Tm	
	Range tolerance category		NDP	
	Flatness of bed faces	mm	NPD	
	Parallelism of bed faces		NPD	
Wall thickness		mm	> 14	
Compressive strength		-	NPD	
Moisture expansion		-	NPD	

Bond strength, fixed value	-	NDP
Content of active soluble salts	-	S0
Reaction to fire	-	A1
Water absorption	%	<20
Tabulated water vapour diffusion coefficient	-	5/10
Gross dry density	-	NDP
Density tolerance category	-	D1
Thermal conductivity coefficient λ10,dry,unit	-	NDP
Freeze–thaw resistance category	-	F1
Dangerous substances	-	NPD

LIFE CYCLE ASSESSMENT (LCA) – General rules applied

Declared unit

Declared unit is 1 tonne of ceramic masonry units.

System boundary

The life cycle analysis of the declared products covers “Product Stage” A1-A3, A4-A5, C1-C4+D modules in accordance with EN 15804 and ITB PCR A (cradle to grave with options). Energy and water consumption, emissions as well as information on generated wastes were inventoried and were included in the calculation. It can be assumed that the total sum of omitted processes does not exceed 2% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

Allocation

The allocation principles applied in this EPD are based on EN 15804+A2 and the general ITB PCR A.The declared products are ceramic masonry units manufactured by Leier Polska S.A., including Thermopor and Thermopor Plan ceramic blocks. The production of ceramic masonry units is based on a sequence of technological processes including raw material extraction and preparation, shaping, drying, firing, sorting and packaging.
The ceramic products covered by this EPD are manufactured in Leier Polska S.A. production plants where ceramic construction products are produced. The plants relevant for the declared ceramic masonry units include, as applicable:

- Leier Polska S.A. plant in Wola Rzędzińska,
- Leier Polska S.A. plant in Markowicze,
- Leier Polska S.A. plant in Sierakowice.

Allocation was performed on a physical basis, using product mass as the allocation criterion.
All impacts related to the extraction and processing of raw materials are allocated to module A1. The impacts related to the transport of raw materials, ancillary materials and packaging materials to the manufacturing plants are allocated to module A2. Energy and water consumption, process emissions, packaging materials, internally generated production waste and other production-related flows are allocated to module A3.
Production data were collected separately for the relevant Leier Polska S.A. plants manufacturing ceramic masonry units. The calculations were performed separately for each plant. The results were then averaged using a weighted average approach based on the annual production mass of the declared ceramic masonry units.
For common processes and flows that could not be directly assigned to individual product types, allocation was carried out on the basis of the mass of the respective products. No economic allocation was applied. Packaging materials were included in the calculations.

System limits

100 % of material inputs and energy consumption were inventoried and included in the calculations. The assessment considers all significant parameters from the collected production data, including raw material inputs, auxiliary materials, packaging materials, fuel and electricity consumption, direct production waste and available emission measurements.
The total amount of neglected input flows per modules A1–A3 does not exceed the permitted maximum of 1% of energy use and product mass. Tyre consumption related to transport was not taken into account. It is assumed that the total contribution of omitted processes does not exceed 2% of the total environmental impact in any impact category considered. In accordance with EN 15804+A2, machines, production facilities and other capital goods required for production are excluded from the system boundary, as is employee transport.

Modules A1 and A2: Raw material supply and transport

The declared ceramic masonry units are manufactured mainly from clay raw materials, water, auxiliary materials and packaging materials. The raw materials and packaging materials are delivered to the manufacturing plants primarily by trucks. Polish and European average transport and fuel data were used in the calculations, where appropriate. Data on transport mode and transport distances, as reported by suppliers or derived from plant-specific information, were used for materials contributing more than 0.1% of the total product mass.

Module A3: Production

The production of Thermopor and Thermopor Plan ceramic masonry units begins with the extraction and preparation of clay raw materials. The raw materials are crushed, homogenised, mixed with water and, where applicable, with auxiliary additives in order to obtain a ceramic body suitable for forming. The prepared ceramic mass is then shaped into vertically perforated masonry units.
After shaping, the green units are dried under controlled conditions in order to reduce moisture content before firing. Drying is an important stage of the ceramic process, as it stabilises the geometry of the units and reduces the risk of cracking during firing. The dried products are then fired in kilns at temperatures exceeding 900°C. After firing, the ceramic masonry units are cooled, sorted, subjected to quality control, palletised and packed for transport. Energy and water consumption, process emissions, generated production waste and packaging materials used in the production process are included in module A3. A diagram of the production process is shown in Fig. 2.

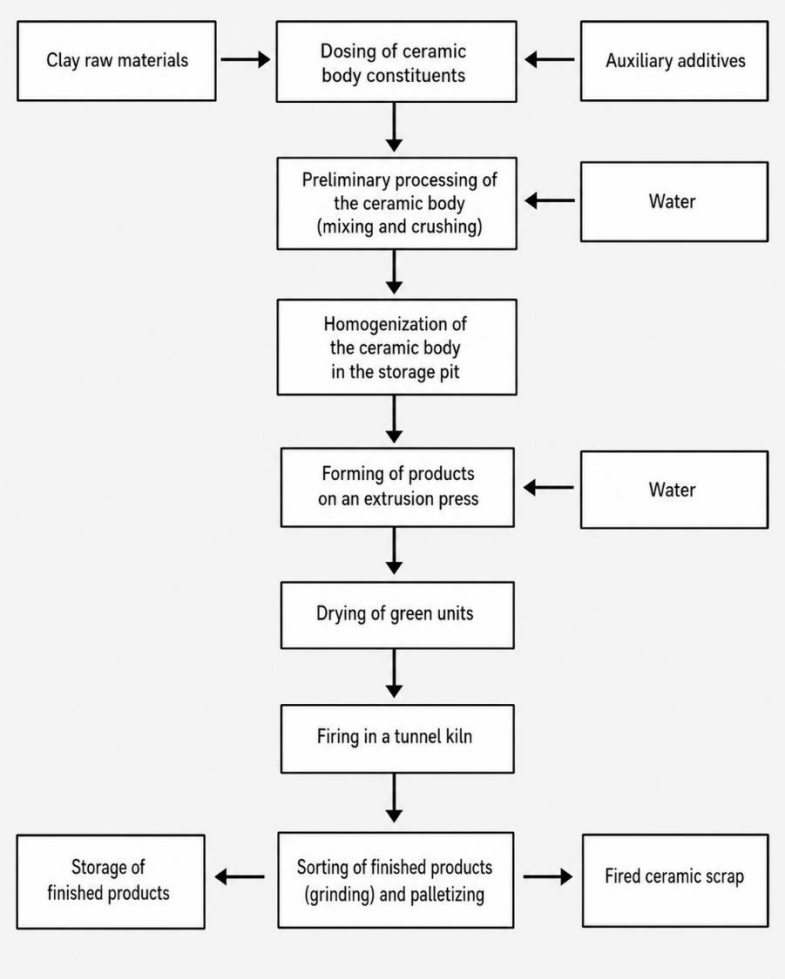


Fig. 2 Manufacturing process scheme (A3)

Module A4: Transport to the construction site

In the adopted scenario products, are transported to the construction site or fabrication plant using trucks with a capacity of 16–32 tons. For the purpose of the LCA, a standard transport distance of 100 km was assumed. Modeling was performed using the market dataset for road transport from the Ecoinvent database. This approach inherently incorporates average European parameters for vehicle load factors, including empty return trips and fuel consumption consistent with the Euro 5 emission standard.

Module A5: Installation

The ceramic masonry units are installed as masonry elements using appropriate masonry mortars or, in the case of Thermopor Plan products, thin-layer masonry mortar or polyurethane adhesive foam, depending on the intended application and construction system. The declared products are installed in Europe.
A flat construction waste rate of 2% is assumed for all declared products. The additional amount of product required to compensate for installation losses is included in the installation scenario. Packaging waste generated during installation is also included in module A5 and treated according to the adopted waste management scenario.

Modules C1–C4 and D: End-of-life

In the adopted scenario, demolition of ceramic masonry units in module C1 is performed as part of building renovation or demolition works. Average energy demand for mechanical dismantling (12 MJ/t, diesel machine).

After demolition, the ceramic masonry units become part of construction and demolition waste. The waste may be processed on site or transported to a waste processing plant. In the adopted scenario, the recovered ceramic material is transported either to a recycling facility, construction site or landfill over an average distance of 100 km using a 16–32 t lorry, EURO 5 (market dataset).
It is assumed that 100% of the ceramic masonry units are collected at the end-of-life stage. In the adopted scenario, 90% of the ceramic demolition waste is recycled and further used as secondary aggregate, for example in road foundation, backfilling or other construction applications. Module C3 covers the preparation of secondary aggregat with diesel machine (10 MJ/t). The potential benefits from substitution of natural aggregate are declared in module D. The remaining 10% is sent to landfill as mixed construction and demolition waste.
Environmental burdens declared in module C4 are associated with final disposal and waste-specific emissions to air, soil and groundwater.

Table 3. End-of-life scenario for ceramic masonry units

Material	Material recovery	Recycling	Landfilling
Ceramic waste	100%	90%	10%

Data quality

The data selected for LCA originate from ITB LCI questionnaires completed by Leier Polska S.A. which were verified during data audit. No data collected is older than five years and no generic datasets used are older than ten years. The representativeness, completeness, reliability, and consistency is judged as good. Specific (LCI) data quality analysis was a part of the input data verification.

Data collection period

The data for manufacture of the declared products refer to period between 01.01.2024 – 31.12.2024 (1 year). The life cycle assessments were prepared for Poland and Europe as reference area.

Assumptions and estimates

The environmental impacts of the products were calculated on the basis of a weighted average.

Calculation rules

LCA was done in accordance with ITB PCR A document (v1.6), based on EN 15804+A2.

Databases

LCA calculations were performed using the openLCA 2.6.1 application. The data for the processes come from the following databases: Ecoinvent v.3.11 Cutoff Unit-Proceses. Specific data quality analysis was a part of external audit.

Additional information

Environmental impacts for electricity are the result of the energy mix of Polish for electricity (2024 year). Polish electricity (Ecoinvent v3.11 supplemented by actual national KOBiZE data) emission factor used is 0.553 kg CO_2/kWh (National for 2024). As a general rule, no particular environmental or health protection measures other than those specified by law are necessary. No mass balance approach was used. The weighted average biogenic carbon content in the raw materials for the products is 6,412 kg C/tonne.

LIFE CYCLE ASSESSMENT (LCA) – Results

Declared unit

The declaration refers to declared unit (DU) – 1 tonne of ceramic masonry units.

Table 4. System boundaries for the environmental characteristic of the product.

Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	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**
MD	**MD**	**MD**	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MD**	**MD**	**MD**	**MD**	**MD**

Table 5. Life cycle assessment (LCA) results for specific product – environmental impacts (DU: 1 tonne)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Global Warming Potential	eq. kg CO_2	-2.60E+01	7.08E+00	2.13E+02	1.94E+02	1.96E+01	1.08E+00	1.23E+00	1.94E+01	1.55E+01	1.76E+00	-1.30E+01
Greenhouse potential - fossil	eq. kg CO_2	1.32E+01	7.07E+00	1.88E+02	2.08E+02	1.96E+01	8.76E-01	1.23E+00	1.94E+01	1.03E+00	1.76E+00	-1.30E+01
Greenhouse potential - biogenic	eq. kg CO_2	-3.92E+01	4.85E-03	2.46E+01	-1.45E+01	1.34E-02	2.06E-01	2.49E-04	1.33E-02	1.45E+01	6.88E-03	-2.80E-02
Global warming potential - land use and land use change	eq. kg CO_2	2.48E-02	2.35E-03	8.30E-03	3.55E-02	6.48E-03	1.80E-04	1.26E-04	6.43E-03	1.05E-04	8.51E-04	-1.02E-02
Stratospheric ozone depletion potential	eq. kg CFC 11	1.76E-07	1.54E-07	5.67E-06	6.00E-06	4.26E-07	8.42E-09	1.83E-08	4.23E-07	1.52E-08	3.97E-08	-1.38E-07
Soil and water acidification potential	eq. mol H+	1.02E-01	2.27E-02	6.64E-01	7.89E-01	6.28E-02	2.98E-03	1.10E-02	6.23E-02	9.18E-03	1.29E-02	-8.17E-02
Eutrophication potential - freshwater	eq. kg P	4.19E-04	5.22E-05	5.66E-03	6.13E-03	1.44E-04	7.66E-06	4.31E-06	1.42E-04	3.59E-06	3.64E-05	-3.52E-04
Eutrophication potential - seawater	eq. kg N	2.82E-02	7.56E-03	1.34E-01	1.69E-01	2.09E-02	1.09E-03	5.12E-03	2.07E-02	4.27E-03	4.43E-03	-2.23E-02
Eutrophication potential - terrestrial	eq. mol N	3.50E-01	8.31E-02	1.47E+00	1.90E+00	2.30E-01	1.16E-02	5.61E-02	2.28E-01	4.68E-02	4.84E-02	-2.62E-01
Potential for photochemical ozone synthesis	eq. kg NMVOC	1.04E-01	3.44E-02	5.08E-01	6.46E-01	9.53E-02	3.88E-03	1.68E-02	9.45E-02	1.40E-02	1.61E-02	-8.00E-02
Potential for depletion of abiotic resources - non-fossil resources	eq. kg Sb	3.09E-04	2.47E-05	8.20E-05	4.16E-04	6.75E-05	1.14E-06	4.53E-07	6.70E-05	3.78E-07	5.34E-06	-6.68E-05
Abiotic depletion potential - fossil fuels	MJ	1.68E+02	1.00E+02	1.62E+03	1.88E+03	2.78E+02	6.24E+00	1.60E+01	2.75E+02	1.34E+01	2.95E+01	-1.71E+02
Water deprivation potential	eq. m^3	9.30E+00	5.27E-01	1.27E+01	2.25E+01	1.45E+00	1.58E-01	4.14E-02	1.44E+00	3.45E-02	6.13E-01	-1.13E+01

Table 6. Life cycle assessment (LCA) results for specific product – additional impacts indicators (DU: 1 tonne)

Indicator	Unit	A1-A5	C1-C4	D
Particulate matter	Disease incidence	INA	INA	INA
Potential human exposure efficiency relative to U235	eg. kBq U235	INA	INA	INA
Potential comparative toxic unit for ecosystems	CTUe	INA	INA	INA
Potential comparative toxic unit for humans (cancer effects)	CTUh	INA	INA	INA
Potential comparative toxic unit for humans (non-cancer effects)	CTUh	INA	INA	INA
Potential soil quality index	dimensionless	INA	INA	INA

Table 7. Life cycle assessment (LCA) results for specific product - the resource use (DU: 1 tonne)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	2.69E+02	1.65E+00	8.49E+01	3.55E+02	4.52E+00	2.59E-01	1.01E-01	4.48E+00	8.42E-02	1.26E+00	-1.03E+01
Consumption of renewable primary energy resources used as raw materials	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	0.00E+00
Total consumption of renewable primary energy resources	MJ	2.69E+02	1.65E+00	8.49E+01	3.55E+02	4.52E+00	2.59E-01	1.01E-01	4.48E+00	8.42E-02	1.26E+00	-1.03E+01
Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials	MJ	1.68E+02	1.00E+02	1.62E+03	1.88E+03	2.78E+02	6.24E+00	1.60E+01	2.75E+02	1.34E+01	2.95E+01	-1.71E+02
Consumption of non-renewable primary energy resources used as raw materials	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	0.00E+00
Total consumption of non-renewable primary energy resources	MJ	1.68E+02	1.00E+02	1.62E+03	1.88E+03	2.78E+02	6.24E+00	1.60E+01	2.75E+02	1.34E+01	2.95E+01	-1.71E+02
Consumption of secondary materials	kg	2.54E+02	0.00E+00	0.00E+00	2.54E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Consumption of renew. secondary fuels	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	0.00E+00
Consumption of non-renewable secondary fuels	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	0.00E+00
Net consumption of freshwater	m^3	2.02E-01	1.21E-02	3.35E-01	5.49E-01	3.35E-02	-2.25E-02	1.03E-03	3.33E-02	8.57E-04	-1.08E-01	-2.61E-01

Table 8. Life cycle assessment (LCA) results for specific product – waste categories (DU: 1 tonne)

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	1.30E+00	1.02E-01	2.34E+00	3.74E+00	2.82E-01	1.35E-02	1.43E-02	2.80E-01	1.19E-02	3.35E-02	-5.86E-01
Non-hazardous waste	kg	1.22E+01	1.09E+00	1.19E+01	2.52E+01	3.01E+00	2.82E+01	1.05E-01	2.99E+00	8.77E-02	1.33E+02	-3.35E+00
Radioactive waste	kg	1.56E-04	2.99E-05	1.23E-04	3.09E-04	8.16E-05	6.05E-06	1.68E-06	8.10E-05	1.40E-06	2.97E-05	-1.94E-04
Components for re-use	kg	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	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	6.66E+01	6.66E+01	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	0.00E+00	0.00E+00	7.29E-02	7.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported Energy	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	0.00E+00

Verification

The process of verification of this EPD is in accordance with ISO 14025. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804+A2 and ITB PCR A
Independent verification corresponding to ISO 14025 (subclause 8.1.3.) ☒ external ☐ internal
External verification of EPD: PhD. Eng. Halina Prejzner LCA, LCI audit and input data verification: Filip Poznański, M.Sc. Eng. LCA verification: Michał Piasecki, PhD., D.Sc., Eng.

Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.

Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent, third-party verification organization (ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.

Normative references

- ITB PCR A General Product Category Rules for Construction Products
- EN 771-1:2011+A1:2015-10 Specification for masonry units - Part 1: *Clay masonry units*.
- EN 459-1:2015 Building lime - Definitions, specifications and conformity criteria
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business
- KOBiZE CO_2, SO_2, NOx, CO, and total dust emission indicators for electricity. December 2024
- https://ecoinvent.org/

LCA, LCI audit and input data verification
Michał Piasecki, PhD. D.Sc. C.E. Eng.
/Qualified electronic signature/

Head of Thermal Physic, Acoustic and Environment Department
Agnieszka Winkler-Skalna, PhD. C.E. Eng.
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Instytut Techniki Budowlanej

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CERTIFICATE № 978/2026
of TYPE III ENVIRONMENTAL DECLARATION

Products:

Ceramic masonry units

Manufacturer:

Leier Polska S.A.

Wola Rzędzińska 155 A, 33-150 Wola Rzędzińska, Poland

Production sites:

Zakład produkcyjny Sierakowice
Kozielska 1, 44-156 Sierakowice, Poland

Zakład produkcyjny Wola Rzędzińska
33-150 Wola Rzędzińska 155a, Poland

Zakład produkcyjny Markowicze
Cegielnia-Markowicze, 23-414 Majdan Stary, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

EN 15804+A2

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

This certificate, issued on 29th June 2026 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, June 2026