Łukasiewicz
Institute of Ceramics
and Building Materials

CREATON

ENVIRONMENTAL PRODUCT DECLARATION

No. 01-05/2025

Ceramic roof tiles

CREATON Polska Sp. z o.o.

Owner of the declaration:	*Creaton Polska Sp. zo.o.*
Programm owner:	*Łukasiewicz Research Network – Institute of Ceramics and Building Materials*
Program name:	*Environmental product declaration*
Data of issue:	***12.05.2025***
Declaration valid until:	***12.05.2030***

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1. GENERAL INFORMATION

Product of declaration:	Ceramic roof tiles: **TITANIA, SIMPLA, KODA, MAXIMA Pro**
Program owner: Łukasiewicz Research Network– Institute of Ceramics and Building Materials Environmental Engineering Center in Opole. **http://www.icimb.pl/opole/**	**Declaration owner:** CREATON Polska Sp. z o.o. Wspólna 6 str., 32-300 Olkusz Telephone: +48 32 624 95 00 Address: biuro@creaton.com **https://www.creaton.pl//**
Declared unit:	**1 kg**
Date of issue:	12.05.2025
Declaration valid until:	12.05.2030
Life Cycle Analysis (LCA):	A1-A3, A4, A5, C1-C4 and D according to PN-EN 15804+A2 (Cradle-to-Gate with options)
Product Categorization (PCR) Rules	PN-EN 15804+A2:2020-03 Sustainability of construction works. Environmental Product Declarations. Basic principles of categorization of construction products, ICIMB-PCR A.
Representatives:	Polish product, year 2024
Declared durability:	No declared product durability
Reasons for performing LCA:	B2B
Standard of product	EN 1304:2005

Declarations that are the result of different programs or are not performed in accordance with the standard may not be comparable.

The Łukasiewicz – Institute of Ceramics and Building Materials Environmental Engineering Center provides access to the Type III environmental declaration for ceramic roof tiles to interested parties.

The declaration owner is responsible for the information and the base evidence. Łukasiewicz Research Network - Institute of Ceramics and Building Materials Center for Environmental Engineering is not responsible for the manufacturer's information and data and evidence regarding the life cycle assessment.

Authors' team: Katarzyna Kiprian, M.Sc. Ewa Głodek-Bucyk, Ph.D. Patryk Okoń, M.Sc. **Approved:**  Joanna Poluszyńska, PhD Director of the Environmental Engineering Center  Ewa Głodek-Bucyk, Ph.D. Leader of the Process Engineering Research Group	**Review:** CEN standard PN-EN 15804+A2 serves as the main PCR document. Independent verification of declarations and data according to EN ISO 14025:2010 ☐ Internal ☒ External  Katarzyna Grzesik, PhD, DSc

2. MANUFACTURER AND PRODUCT INFORMATION

CREATON Polska Sp. z o.o. operates two cement roof tile production plants located in Olkusz and Chojnice, as well as the most modern ceramic roof tile factory in Europe, located in Widziszew.

The cement roof tile factory in Olkusz was launched on June 23, 1999. The plant occupies an area of approximately 4 hectares and was established on the site of an old mine. At the time of its completion, it was the most modern facility of its kind in Europe. It was equipped with, among other things, an automated cement roof tile production line.
Three models of cement roof tiles are produced in Olkusz: **KAPSTADT**, **GÖTEBORG**, and **HEIDELBERG**.

CREATON's second cement roof tile factory was officially opened on June 5, 2009, in Chojnice. The new facility was equipped with two automated production lines. The first batch of tiles—**GÖTEBORG** —came off the production line on February 12, 2009.
Three models of cement roof tiles are produced at the Chojnice plant: **GÖTEBORG**, **HEIDELBERG**, and a new addition — **KIOTO**.

The third plant owned by CREATON Polska is a ceramic roof tile factory, officially opened on September 19, 2012. Located in the town of Widziszewo, it is the largest and most modern facility of its kind in all of Europe. The location was chosen due to the presence of high-quality clay deposits beneath Widziszewo.
The factory features one of the longest kilns in the world, measuring 215 meters in length. Thanks to modern, automated production lines, the facility is capable of meeting even the highest demand.
The Widziszewo plant manufactures ceramic roof tiles: **TITANIA**, **SIMPLA**, **KODA**, and **MAXIMA PRO**.

The product group covered by the declaration includes ceramic roof tiles:

- Titania,
- Simpla,
- Koda,
- Maxima Pro.

The indicative composition of the products covered by the declaration is given in the table below. The percentage share depends on the type of product.

Table 1 Indicative composition of the products covered by the declaration

Material	Mass fraction [%]
Clay	75-80
CREATON blend	20-25
Additives	0-1

The production process of ceramic roof tiles begins with the storage of raw materials such as clay, loam, and sand. The gathered materials are then transferred to the raw material preparation stage, where water and barium carbonate are added. The mixture undergoes grinding, mixing, and homogenization processes.

The next step is extrusion, during which the mass is shaped into the appropriate form of roof tiles. Gypsum molds are used in this process; these molds wear out over time and are replaced. The shaped tiles then proceed to drying, where moisture is removed.

Simultaneously with these earlier stages, engobes and glazes are prepared using water and ceramic raw materials. The finished engobes and glazes go to the engobing and glazing department, where the tiles are coated with a protective and decorative layer.

After these processes, the tiles are fired in a kiln where their shape and coating are fixed using natural gas. Exhaust gases and substances generated during firing are purified in a fluorine adsorber. At this stage, waste is also produced in the form of spent lime and rejected fired tiles, which can be partially recycled back into earlier stages.

The finished tiles are packaged using appropriate packaging materials and then sent to product storage. From there, they are delivered to the end customers.

Figure 1 illustrates the production process of ceramic roof tiles at the CREATON Polska Sp. z o.o. plant in Widziszewo.

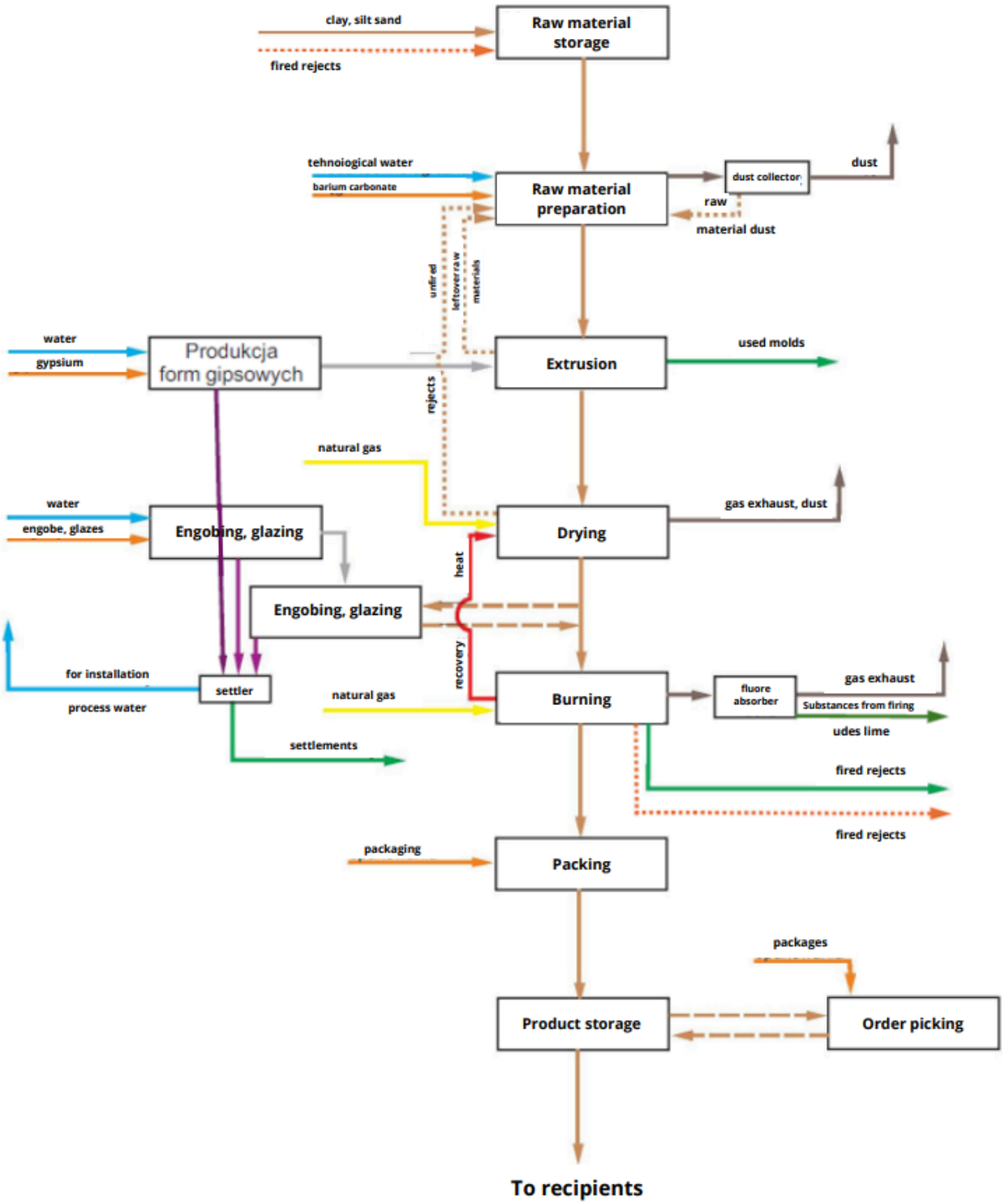

Figure 1: Production diagram of ceramic roof tiles manufactured by CREATON Polska Sp. z o.o. at the production plant in Widziszewo.

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TITANIA®

TITANIA® is an elegant, functional, and durable ceramic roof tile. Its timeless shape has made it one of the most popular ceramic tiles for years. The pronounced "wave" of the TITANIA® tile redefines the charm of the classic flat Dutch tile, bringing new meaning to the enduring beauty of ceramic roofing.

Numerous functional features of the TITANIA® tile contribute to a roof with outstanding performance characteristics. The model is designed in the so-called "format 10," with an impressively low consumption rate of only 9–10.1 tiles per square meter, which significantly streamlines roofing work.

Its interlocks and overlaps fit together perfectly, offering effective protection against adverse weather conditions. An advanced water drainage system ensures the surface remains a reliable barrier against rain and snow. The high-quality, durable finishes—available in both classic and modern colors—guarantee that your roof will remain visually striking for many years.

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SIMPLA®

SIMPLA® is the ideal roof tile for a modern roof. Its flat shape, large format, and fashionable color palette make it a perfect solution for those who value minimalism above all. The tile is available in trend-forward colors such as black, anthracite, and slate, offered in refined matte engobe or elegant glazed finishes.
The minimalist, geometric form combined with subdued tones gives the roof a sleek, contemporary look. SIMPLA® creates a functional roof covering that harmonizes beautifully with any type of façade. Tight-fitting interlocks and stepped overlaps provide reliable protection against water and dirt infiltration.
An integrated system of underside ribs and bridges enhances the durability of the entire roof. With impressively low material consumption, installation time is reduced, resulting in lower overall roofing costs.

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KODA®

KODA® is defined by the precision of its design and the lightness of form characteristic of high-end modern interlocking roof tiles. It is the result of CREATON experts' pursuit of harmony between timeless beauty and exceptional roof durability. The tile impresses with its balanced shape, refined in every detail. It captivates with its lightness, emphasized by the absence of unnecessary ornamentation.
Its original form breaks the monolithic, minimalist shape typical of flat models with a distinctive play of light, creating a unique sense of beauty. Designed with modern architecture in mind, it stylishly combines trend and elegance. It is a perfect choice for those who appreciate distinctive and unconventional solutions. On the roof, it becomes a stunning final accent that completes the entire construction process.

MAXIMA PRO®

MAXIMA PRO® is a universal product designed for the renovation of old buildings. It is ideal for replacing old roofing materials in need of refurbishment. It easily covers concrete roof tiles with a thickness of 10 mm. The tile fits perfectly into terraced housing developments. High flexibility and simplified installation thanks to a large adjustment range of 41 mm.

Table 2. Properties and Key Specifications of CREATON ceramic roof tiles

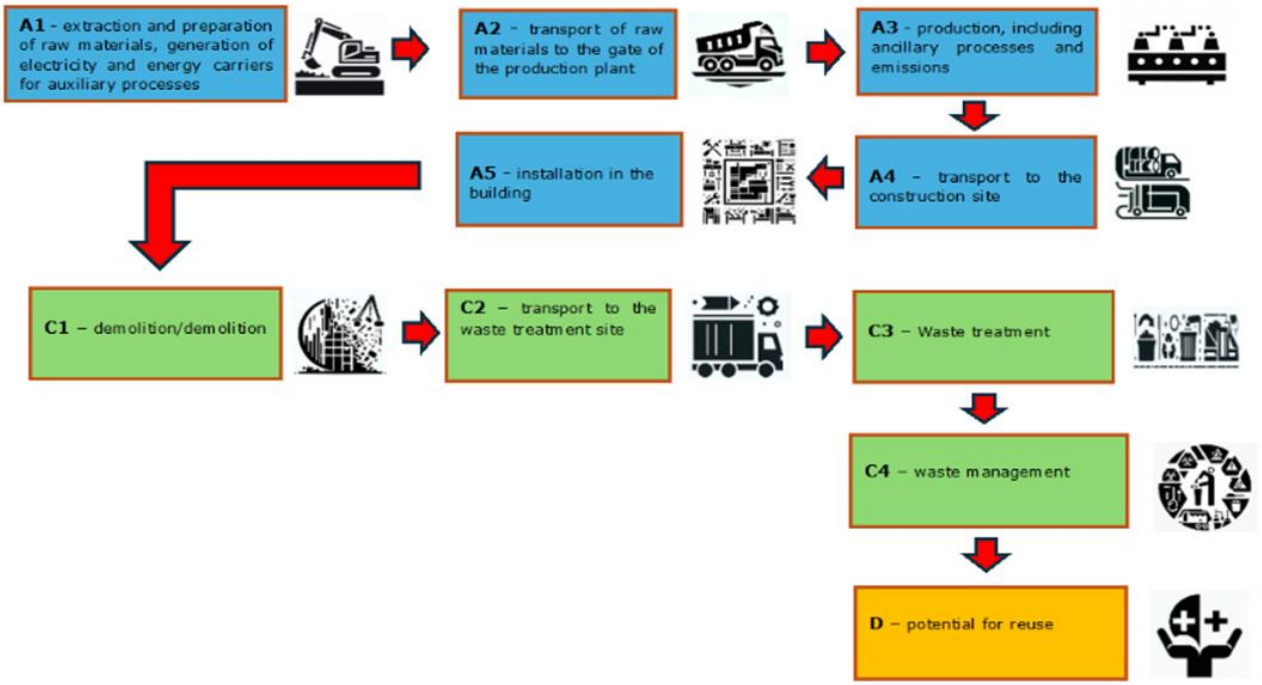
Parameter	Titania	Simpla	Koda	Maxima Pro
Length [mm]	514	500	503	397
Width [mm]	325	298	303	329
Average covering length [mm]	401	354	n/d	327
Average covering width [mm]	262	262	260	300
Weight [kg]	4,8	4,8	4,8	3,6
Water absorption [%]	5,4	4,8	5,1	5,7

3. LCA: CALCULATION RULES

The EPD is declared as representing the average environmental characteristics for the total production of ceramic roof tiles: TITANIA, SIMPLA, KODA, and MAXIMA Pro, manufactured at the CREATON Polska Sp. z o.o. production facility in Widziszewo.

System limitations

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



Data colleration period

Data on the production process were provided in 2024 for the period 01.01.2024 - 31.12.2024 (12 months) and correspond to the production technology of the time

Declared unit

1 kg

Assumptions

A1 – extraction and consumption of raw materials refers to specific mass shares in the production process, per unit declared of the product,
A2 – distances from the place of obtaining raw materials to the production plant individual for each raw material, means of transport differentiated due to the method of delivery of raw materials,
A3 – CO_2, NO_x, SO_2 and dust emission values from the production process obtained as a result of estimation based on fuel consumption,
A4 – refers to the transport of the final product to the construction site and is treated as average weight-based transport values to customers.
A5 – energy and raw material consumption in this module has been omitted due to its negligible values.
C1 - describes the handling of ceramic roof tiles during disassembly/demolition. Calculations are made on the basis of the developed scenario,
C2 – refers to the transport of construction waste to a recovery or disposal plant. Calculations are made on the basis of the developed scenario,

C3 – takes into account the environmental impact during the processing of demolition waste containing elements of ceramic roof tiles, at the waste recovery plant. Calculations are made on the basis of the developed scenario,
C4 – takes into account the environmental impact of storage and recycling of ceramic roof tiles. Calculations are made on the basis of the developed scenario,
D – refers to the impact and effects of the use of secondary material. The calculations are performed based on the developed scenario.

Cut-off criteria

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

General data

The data for the calculations come from Ecoinvent v. 3.10 and have been supplemented with KOBiZE *CO_2, SO_2, NO_x, CO and total particulate matter emission factors for electricity, December 2024.*
Emission factors for electricity were determined using the actual KOBiZE data. The Polish electricity emission factor used (Ecoinvent supplemented with current national data from KOBiZE) is 0.597 kg CO_2/kWh. A detailed analysis of data quality was part of an external audit.

Allocation

All data on components manufactured at the plant were provided by the owner of the declaration, CREATON Polska Sp. z o.o and were referred to the declared unit of the product – 1 kg. The allocation rules used in this EPD are based on the general ICIMB-PCR A principles.

4. LCA: SCENARIOS AND ADDITTIONAL TECHNICAL INFORMATION

The life cycle assessment has been developed in accordance with the requirements of PN-EN ISO 15804+A2:2020, PN-EN ISO 14025 and PN-EN ISO 14040. The rules for product categorization have been adopted in accordance with the PN-EN 15804 standard.

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

Module A4 – Transport to construction site – Transport is carried out using trucks with a load capacity of 16–32 tonnes that meet EURO 6 emission standards. The average distance from the plant to the customer is 100 km (data provided by the customer). Calculations assume 100% load capacity.

Module A5 – Installation – Manual installation. Energy and raw material consumption in this module has been omitted due to negligible values. Emissions from packaging transport have been taken into account.

Module C1 - Demolition/Demolition – Manual demolition and initial sorting of waste on site were adopted. The consumption of energy and other raw materials in this module has been omitted due to negligible values. The separated fractions from the insulating glass separation are sent to the waste treatment plant. The modulus is zero.

Module C2 – Transport – Waste is transported to a processing facility (recycling plant).

- 100% of the waste is transported to the processing facility as part of waste category 17 01 01 (construction debris).
- Transport is carried out by trucks with a load capacity of 16-32 tons, meeting the EURO 6 emission standards.
- Transport to the recycling plant takes place at a distance of 100 km from the demolition site.

Module C3 – Waste treatment – Based on national experience, ceramic roof tiles are classified as construction debris. Since construction rubble is considered a valuable type of waste, it is subject to recycling. All waste is sent to a waste processing facility.
Electricity consumption for waste processing is 0.03 kWh/kg, and fuel consumption is 0.315 MJ/kg. The calculations include the following processes: unloading (using a loader) and crushing (using a crusher).

Module C4 – Waste management - This module should consider the environmental impact of landfilled construction rubble containing ceramic roof tiles. In the developed scenario, landfilling operations are not taken into account. Construction waste, including rubble, can be recovered and recycled, enabling the reuse of materials, reducing waste generation, and minimizing environmental impact. This approach aligns with the principles of sustainable development and efficient resource management. It helps reduce landfill loads, conserve natural resources, and lower emissions associated with the production of new construction materials. It is assumed that only packaging waste generated during installation, which cannot be reused, ends up in landfills (10% plastic film, PP spacers; 5% paper/cardboard).

Module D - Material reuse potential - For ceramic roof tiles, it is assumed that 100% of the product is recyclable. Environmental benefits from energy recovery through the incineration of packaging materials (e.g., film, PP spacers, paper) collected after roof tile installation (Module A5) have been considered.

5. LCA: RESULTS

The table below shows the LCA modules taken into account 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 ceramic roof tiles. Explanations of the abbreviations used to describe the impact category are provided below:

GWP-total	Global warming potential
GWP-fossil	Global warming potential fossil fuel
GWP-biogenic	Global warming potential biogenic
GWP-luluc	Global warming potential land use and land change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP-freshwater	Eutrophication potential, fraction of nutrients reaching freshwater end compartment
EP-marine	Eutrophication potential, fraction of nutrients reaching marine end compartment
EP-terrestial	Eutrophication potential, Accumulated Exceedance
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	Abiotic depletion potential for nonfossil resources
ADP-fossil	Abiotic depletion potential for fossil resources
WDP	Water (user) deprivation potential
PM	Potential incidence of disease due to PM emissions
IRP	Potential Human exposure efficiency relative to U235
ETP-fw	Potential comparative Toxic Unit for ecosystems
HTP-c	Potential comparative Toxic Unit for humans (cancerogenic)
HTP-nc	Potential comparative Toxic Unit for humans (non-cancerogenic)
SQP	Potential soil quality index
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PEN-RE	Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials
RE	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable fuels

NRSF Use of non-renewable secondary fuels
FW Use of net fresh water

MAIN IMPACT INDICATORS: 1 kg CREATON ceramic roof tiles

		Life Cycle Stage									
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	1,31E-02	3,19E-03	3,29E-01	1,90E-02	7,60E-05	0,00E+00	1,90E-02	5,32E-02	7,28E-07	-5,02E-03
GWP-fossil	kg CO_2 eq.	1,30E-02	3,18E-03	3,66E-01	1,90E-02	7,59E-05	0,00E+00	1,90E-02	5,31E-02	7,26E-07	-4,89E-03
GWP-biogenic	kg CO_2 eq.	5,01E-05	2,20E-06	-3,73E-02	1,32E-05	5,26E-08	0,00E+00	1,32E-05	7,81E-05	1,92E-09	-1,25E-04
GWP-luluc	kg CO_2 eq.	1,10E-05	1,06E-06	1,72E-04	6,31E-06	2,52E-08	0,00E+00	6,31E-06	3,34E-05	7,56E-11	-2,70E-06
ODP	kg CFC11 eq.	1,54E-10	6,33E-11	1,26E-08	3,78E-10	1,51E-12	0,00E+00	3,78E-10	5,18E-10	1,12E-14	-4,81E-11
AP	mol H+ eq.	9,16E-05	6,62E-06	6,02E-04	3,96E-05	1,58E-07	0,00E+00	3,96E-05	3,76E-04	6,43E-09	-3,59E-05
EP-freshwater	kg P eq.	3,46E-06	2,16E-07	1,01E-04	1,29E-06	5,14E-09	0,00E+00	1,29E-06	2,59E-05	2,14E-11	-1,39E-06
EP-marine	kg N eq.	2,32E-05	1,59E-06	1,38E-04	9,51E-06	3,80E-08	0,00E+00	9,51E-06	1,49E-04	2,97E-09	-9,19E-06
EP-terrestrial	mol N eq.	2,88E-04	1,71E-05	1,25E-03	1,03E-04	4,10E-07	0,00E+00	1,03E-04	1,58E-03	3,25E-08	-1,21E-04
POCP	kg NMVOC eq.	8,19E-05	1,10E-05	7,20E-04	6,58E-05	2,63E-07	0,00E+00	6,58E-05	4,69E-04	9,74E-09	-3,24E-05
ADP-minerals & metals	kg Sb eq.	2,91E-07	1,04E-08	2,98E-07	6,18E-08	2,47E-10	0,00E+00	6,18E-08	4,10E-08	2,97E-13	-5,00E-08
ADP-fossil	MJ	1,55E-01	4,47E-02	4,91E+00	2,67E-01	1,07E-03	0,00E+00	2,67E-01	6,45E-01	9,50E-06	-6,30E-02
WDP	WDP (m^3) świat. ekw	9,08E-03	1,86E-04	1,23E-02	1,11E-03	4,43E-06	0,00E+00	1,11E-03	1,99E-03	2,05E-08	-1,06E-03

ADDITIONAL IMPACT INDICATORS: 1 kg CREATON ceramic roof tiles

		Life Cycle Stage									
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease incidency	1,72E-09	2,33E-10	3,41E-09	1,40E-09	5,59E-12	0,00E+00	1,40E-09	8,29E-09	1,86E-13	-7,23E-10
IRP	kBq U235 eq.	4,52E-04	5,85E-05	3,51E-03	3,47E-04	1,39E-06	0,00E+00	3,47E-04	3,87E-04	5,24E-09	-7,55E-04
ETP-fw	CTUe	2,15E-06	1,34E-07	6,31E-05	8,01E-07	3,20E-09	0,00E+00	8,01E-07	1,61E-05	1,33E-11	-8,64E-07
HTP-c	CTUh	4,18E-10	2,25E-11	7,00E-10	1,35E-10	5,39E-13	0,00E+00	1,35E-10	1,45E-10	2,80E-15	-4,54E-10
HTP-nc	CTUh	2,16E-09	2,80E-11	1,43E-09	1,68E-10	6,71E-13	0,00E+00	1,68E-10	3,18E-10	1,28E-15	-5,67E-11
SQP	-	1,43E-01	2,69E-02	3,67E+00	1,61E-01	6,45E-04	0,00E+00	1,61E-01	8,90E-02	1,17E-05	-1,10E-01

INDICATORS DESCRIBTIONS RESOURCE CONSUMPTION: 1 kg CREATON ceramic roof tiles

		Life Cycle Stage									
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,10E-02	7,73E-04	7,58E-01	4,59E-03	1,83E-05	0,00E+00	4,59E-03	3,42E-02	2,83E-07	-1,79E-02
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	1,10E-02	7,73E-04	7,58E-01	4,59E-03	1,83E-05	0,00E+00	4,59E-03	3,42E-02	2,83E-07	-1,79E-02
PEN-RE	MJ	1,65E-01	4,76E-02	5,39E+00	2,84E-01	1,14E-03	0,00E+00	2,84E-01	6,85E-01	1,01E-05	-6,63E-02
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	1,65E-01	4,76E-02	5,39E+00	2,84E-01	1,14E-03	0,00E+00	2,84E-01	6,85E-01	1,01E-05	-6,63E-02
SM	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
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	1,41E-04	8,39E-06	2,16E-03	4,94E-05	1,97E-07	0,00E+00	4,94E-05	3,95E-04	3,85E-10	-1,29E-05

INDICATORS DESCRIBING OUTPUT STREAMS AND WASTE: 1 kg CREATON ceramic roof tiles											
	Life Cycle Stage										
Indicator	Unit (expressed per DU)	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
Non-hazardous waste	kg	WN	WN	5,41E-03	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
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
Materials for recycling	kg	WN	WN	1,47E-03	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	9,16E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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	6,86E-03

BIOGENIC CARBON	
Contents organic carbon in product (kg C_{org})	0,00E+00
Contents organic carbon in packaging (kg C_{org})	1,52E-02

6. INTERPRETATION OF LCA

Figures 2 present diagrams of the shares of individual life cycle modules on the basic impact categories for CREATON ceramic roof tiles:

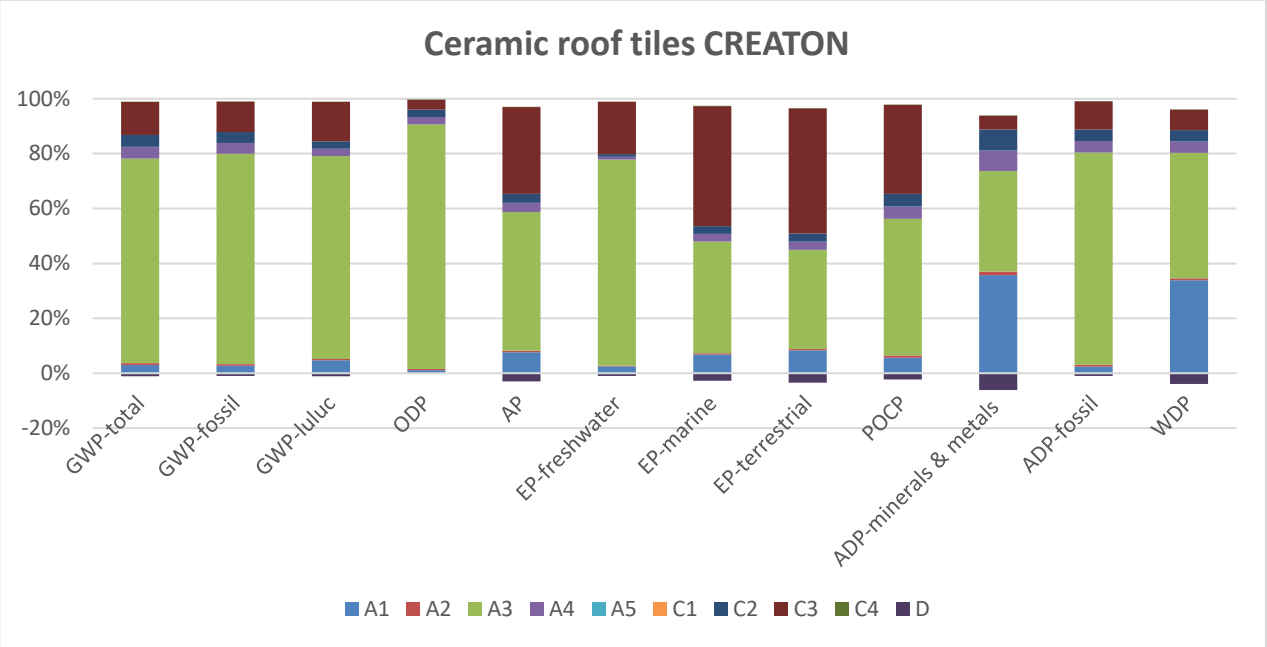


Figure 2 Shares of life cycle modules in the main categories of impacts – ceramic roof tiles CREATON

LITERATURE

- ✓ ICIMB-PCR A. General Product Category Rules for Construction Products.
- ✓ 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 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.
- ✓ KOBiZE CO_2, SO_2, NO_x, CO and total particulate matter emission factors for electricity, December 2023.
- ✓ Additional explanatory material can be obtained from the company page of the declaration owner: https://creaton.pl/

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Institute
of Ceramics
and Building
Materials

PROCESS ENGINEERING RESEARCH GROUP

TYPE III ENVIRONMENTAL DECLARATION CERTIFICATE

No. 01-05/2025

Products:

Ceramic roof tiles

Owner:

CREATON Polska Sp. z o.o.

Wspólna 6 str., 32-300 Olkusz

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 **May 12, 2025** 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 Environmental Engineering Center

Joanna Poluszyńska, PhD

Opole, may 2025