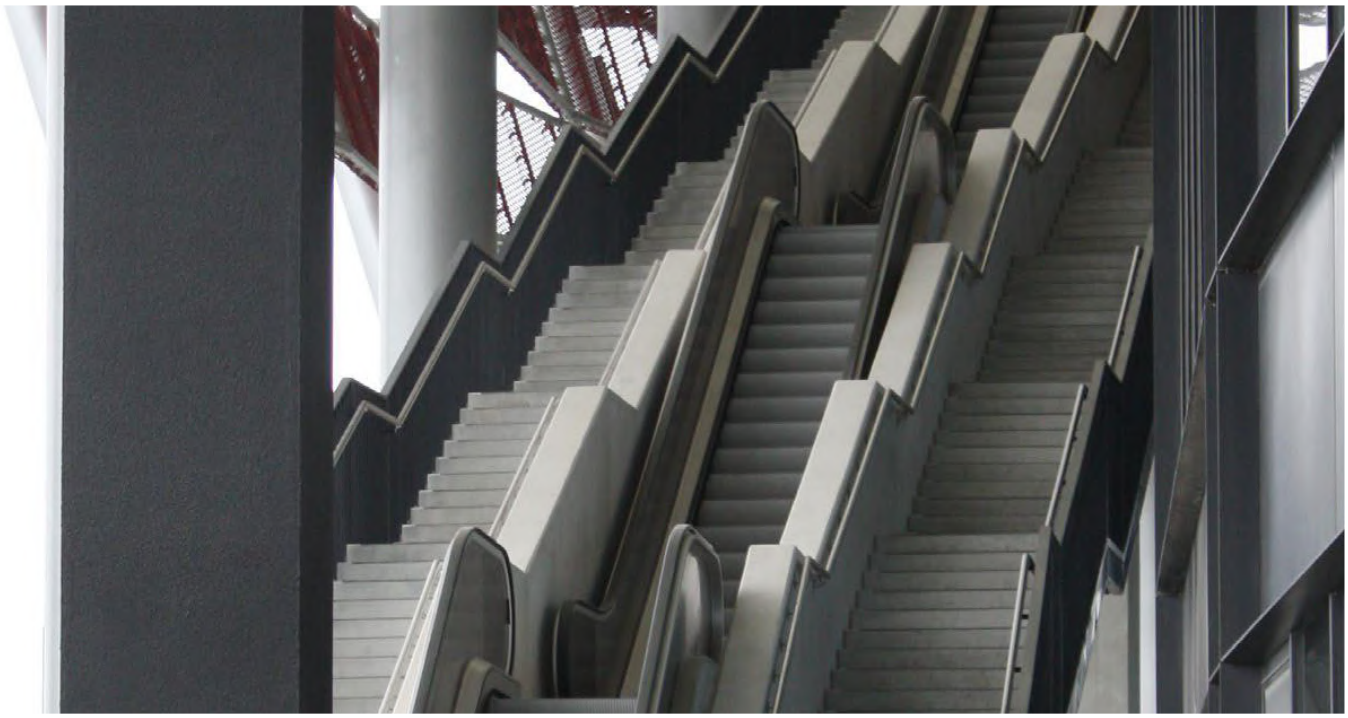
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH:
EN 15804+A2, EN 16757 & ISO 14025

Product name:
REINFORCED CONCRETE PRECAST ELEMENTS



EPD holder:

Bürkle Spółka z o.o.

Issued on 28 November 2025
Valid until 28 November 2030

GENERAL INFORMATION

EPD OWNER

Manufacturer / EPD Holder	Bürkle Spółka z o.o.
Address	Rakowice Wielkie 60, 59-600 Lwówek Śląski, Poland
Contact details	Phone +48 75 613 0450 e-mail: oferty@buerkle.pl, info@buerkle.pl
Website	https://www.buerkle.pl

PRODUCT IDENTIFICATION

Product name	Reinforced Concrete Precast Elements
Place(s) of production	Poland

EPD INFORMATION

EPD Polska program operator	Multicert Sp. z o.o. Ul. Mydlarska 47, 04-690 Warszawa, Poland www.epd.org.pl, epd@epd.org.pl
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standards EN 16757 and EN 15804+A2 serve as the core PCR.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☒ External verification
EPD verifier	Izabela Sztamberek-Sochan, Ph.D.
EPD number	EPD-P 06.11.2025
Registration:	EPD Polska www.epd.org.pl
Publishing date	28 November 2025
EPD valid until	28 November 2030
Reasons for performing LCA	B2B
Accountability	The EPD Holder is responsible for the information provided and evidence. Multicert Sp. z o.o. does not hold responsibility for the manufacturer information, life cycle assessment data nor supporting evidence.

EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

COMPANY INFORMATION

HOLDER OF THE EPD

Bürkle Spółka z o.o.
Rakowice Wielkie 60
59-600 Lwówek Śląski
Poland

Bürkle Spółka z o.o. is a Polish manufacturer of reinforced concrete prefabricated elements, headquartered in Rakowice Wielkie near Lwówek Śląski (Lower Silesia, Poland). The company has operated in Poland since 1995 and is part of the family-owned Bürkle Baugruppe, whose parent plant is located in Fellbach near Stuttgart, Germany.

For almost three decades on the Polish market, Bürkle has built a strong position as a reliable supplier of structural precast components for residential, public-utility, industrial, and infrastructure projects. Its main portfolio includes reinforced concrete stair flights and landings, balcony slabs, grandstands, columbarium modules, retaining walls, prefabricated products made to customer order, and elements of small-scale architecture.

A key advantage of Bürkle is the close integration of its production facility with its in-house design and engineering office. The company's design department is a specialized team of experienced structural engineers and designers who prepare workshop and execution documentation for precast elements and support projects from concept through to production. This engineering capability enables Bürkle to deliver products tailored to individual customer requirements, including non-standard geometries, dimensions, reinforcement layouts, surface finishes, and project-specific technical parameters.

By combining long-term expertise, modern prefabrication processes, and responsive technical support, Bürkle provides investors, designers, and contractors with comprehensive precast solutions—custom-made, consistently high in quality, and adapted to the functional and architectural needs of each project.

PRODUCT INFORMATION

PRODUCT DESCRIPTION

The product group covered by this EPD includes precast concrete elements manufactured by Bürkle Spółka z o.o. in Rakowice Wielkie near Lwówek Śląski. The declared group comprises: precast stairs and landings, balcony slabs, grandstand/stand elements, columbarium modules, retaining walls, and other precast concrete or structural elements.

All products are factory-made from structurally reinforced concrete, cast in reusable molds or project-specific forms. Bürkle integrates its production plant with its own design office, which enables the manufacture of precast elements while shortening the time between design and the finished product. As a result, elements are produced in various shapes, dimensions, surface textures, and finishes, tailored to individual architectural and structural requirements.

The declared unit for LCA results is 1 tonne of an averaged product representing the above categories. The EPD therefore reflects the weighted environmental performance of a typical mix of Bürkle's reinforced-concrete precast assortment.

PRODUCT APPLICATION

Reinforced concrete precast elements are used as structural components in buildings and other construction projects. Depending on the category, Bürkle products serve the following typical applications:

- Stairs and Landings: vertical circulation in residential, public, industrial, and commercial buildings; manufactured as elements for installation in stairwells on sound-damping pads/bearings, or for permanent connection to the building floor/structure using loose reinforcement for monolithic on-site connections.
- Balconies: external slabs for multi-family and public buildings; produced in several functional surface variants (e.g., architectural concrete finish, anti-slip tops, ready for cladding, integrated slopes and drainage details, concrete balustrades, thermal break solutions).
- Grandstands / tribunes: seating structures for sports halls, stadiums, auditoriums and public venues, enabling fast assembly and durable use.
- Columbariums: cemetery and memorial infrastructure, designed as modular units; can be produced in virtually any architect-specified form.
- Retaining Walls: structural elements for terrain stabilization, securing excavations and trenches, supporting embankments for roads and infrastructure, bridge abutments and wing walls, and retaining bulk materials. Produced as L-shaped, T-shaped, cantilever, or modular systems in plain, reinforced, or prestressed concrete to meet specific geotechnical and structural requirements.
- Other concrete precast elements: small architecture and project-specific components supporting functionality and aesthetics of public and private spaces.

PRODUCT STANDARDS

The reinforced-concrete precast elements covered by this EPD are manufactured under Factory Production Control (FPC) and CE-assessed in accordance with harmonised European standards for precast concrete products. The declared product group is produced within the common framework for precast concrete, and—depending on the element type—complies with the following product standards:

- EN 13369 — Common rules for precast concrete products. Overarching standard defining general requirements, performance criteria, tolerances and conformity assessment rules for precast concrete products.
- EN 14843 — Precast concrete products – Stairs. Applicable to precast stair flights, landings and related stair components included in the declared group.
- EN 13747 — Precast concrete products – Floor plates for floor systems. Applicable where declared elements are manufactured as slab/plate-type precast components (e.g., balcony slabs, grandstand steps or decks).
- EN 13225 — Precast concrete products – Linear structural elements. Applicable to linear load-bearing precast components within the declared assortment (e.g., beams, stringers or edge elements used in balconies or grandstands).
- EN 14992 — Precast concrete products – Wall elements. Applicable to wall/panel-type precast units, including modular elements such as columbarium components or other declared products with a wall-element character.
- EN 15258 — Precast concrete products - Retaining wall elements.

Where a specific element type is not fully covered by a dedicated product family standard, requirements of EN 13369 apply as the common harmonised basis, and the element is designed and manufactured according to project-specific structural documentation.

PRODUCT RAW MATERIAL COMPOSITION

The typical raw material composition of the declared reinforced-concrete precast elements is as follows (by mass):

Natural aggregates	71%
Cement	13%
Water	7%
Filler	5%
Steel	4%

ADDITIONAL TECHNICAL INFORMATION

Bürkle manufactures precast elements predominantly to individual project documentation prepared or verified by its in-house design office. The engineering team develops workshop drawings, reinforcement layouts and detailing using specialized structural software, and supports optimization from monolithic to precast solutions where beneficial.

Key technical features across the product group include:

- Customizability: elements produced in individual moulds allow wide freedom of geometry and architectural expression (notably for stairs, balconies and columbaria).
- Durability and precision: factory curing, controlled reinforcement placement and dimensional checks enable reliable fit and fast on-site installation.
- Surface options: architectural concrete, smooth formwork finish, anti-slip textures, terrazzo cladding for stairs, and integrated functional details (drainage, slopes, edges, balustrades).

Because the EPD is declared per 1 tonne of averaged product, environmental indicators may be scaled to specific elements by multiplying the per-tonne results by the mass of the selected precast component.

SUBSTANCES, REACH - VERY HIGH CONCERN

Based on the nature of reinforced concrete and standard reinforcing steel supply, the declared product group is not expected to contain substances of very high concern (SVHC) listed under REACH in concentrations above 0.1% by weight. The products are inert in use and do not require chemical treatments during the service life.

PRODUCT LIFE-CYCLE

RAW MATERIAL SUPPLY AND TRANSPORT (A1, A2)

Module A1 covers the procurement of raw materials used for reinforced-concrete precast elements manufactured by Bürkle. The principal inputs are concrete constituents delivered to Bürkle's on-site batching plant (cement, natural aggregates, water and mineral filler), as well as reinforcing steel (rebars and/or welded meshes) and minor auxiliary materials such as spacers, inserts and form-release agents. The average material composition of the declared product group is dominated by concrete and steel reinforcement.

Module A2 covers transport of raw materials from suppliers to the Bürkle manufacturing plant in Rakowice Wielkie near Lwówek Śląski, Poland. Transport is primarily by road using diesel trucks (typically >16 t, EURO 6). Because concrete is produced within the plant, A2 includes transport of cement, aggregates, filler/admixtures and steel to the site, while no external transport of ready-mix concrete is required. Transport modelling and related calculations are based on Bürkle's actual logistics data, including real supply routes and delivery records for the declared raw materials, ensuring that the assumed transport scenario reflects representative company practice.

MANUFACTURING (A3)

Module A3 includes manufacturing of reinforced-concrete precast elements at the Bürkle plant. The production process covers preparation of reinforcement (cutting, bending and assembly of cages/meshes), formwork preparation and cleaning, placing of inserts and accessories, on-site concrete production in Bürkle's own batching plant, casting into moulds, vibration/compaction, demoulding, finishing, and internal transport/storage.

Energy use in this module includes: electricity for reinforcement processing, the on-site batching plant and production equipment, overhead cranes, vibration, lighting and auxiliary systems; LPG (liquefied petroleum gas) used for hall heating and/or thermal curing processes; diesel fuel for internal transport and handling operations within the plant (e.g., forklifts, loaders or other site vehicles).

Water use includes mixing water and process/cleaning water. Concrete residues and wash water are managed on-site according to internal procedures. Reinforcement offcuts and metal wastes are segregated and sent for recycling. Concrete waste (if generated) is managed according to standard inert waste practice. Packaging for delivery typically includes wooden supports/spacers and straps, in small quantities, and is optimized to protect elements during transport. Benefits from recycling of steel and concrete at end-of-life are reported outside the system boundary in Module D.

TRANSPORT TO THE CONSTRUCTION SITE (A4)

Module A4 covers transport of reinforced-concrete precast elements from the Bürkle plant to the customer / construction site. Delivery is carried out by heavy-duty road transport (large EURO 6 diesel trucks). The model assumes an average transport distance of 250 km per delivery, representing typical distribution routes to construction projects.

USE STAGE / CARBONATION DURING SERVICE LIFE (B1)

During the use stage, the precast concrete elements remain installed as integral parts of buildings or civil structures. In accordance with EN 16757 / EN 15804+A2, CO_2 uptake by carbonation of concrete during the service life is included in Module B1. A simplified calculation approach is applied, assuming that the declared products function as part of a building and therefore carbonate under typical in-use exposure conditions for structural concrete elements within buildings. The resulting CO_2 uptake is modelled using reference parameters of the adopted methodology, without project-specific exposure classification. For this default building-use scenario, a 50-year reference service life and an average exposed surface of 6 m^2 per m^3 of concrete were assumed, with conservative exposure conditions.

END OF LIFE (C1, C2, C3, C4, D)

End-of-life stages are modelled using a reference scenario compliant with EN 15804+A2 and EN 16757.

Module C1 (deconstruction):

Deconstruction is assumed as standard mechanical demolition of precast concrete elements, with an energy demand of 36 MJ per tonne of concrete.

Module C2 (transport of waste):

Transport of demolition waste is modelled as road transport of 100% of the mass over a representative distance of 80 km using Euro 6 trucks.

Module C3 (waste processing):

After demolition, concrete elements undergo crushing and sorting to produce recycled concrete aggregates (RCA). In the model, 95% of the concrete mass is directed to material recovery as RCA. This high-recovery default for segregated concrete is consistent with EU CDW recovery performance (~89% on average), which includes mixed streams and lower-grade recovery such as backfilling. The processing stage includes storage/processing conditions that enable further carbonation of the recycled concrete. Reinforcing steel is separated as scrap and sent to recycling; in accordance with the adopted end-of-life methodology, reinforcement steel is assumed to be recycled at the same recovery rate as concrete, based on reference parameters for steel.

Module C4 (disposal):

The remaining 5% of the concrete fraction that is not recovered after processing is disposed of as inert waste in landfill. Any minor non-recoverable residues follow standard landfill practice for inert construction waste.

Module D (benefits and loads beyond the system boundary):

Module D reports benefits and loads beyond the system boundary resulting from material recovery at end-of-life. Credits are calculated for avoided primary production of reinforcing steel recycled as scrap, and for avoided extraction/production of natural aggregates through substitution with recycled concrete aggregates from the 95% recycled concrete fraction, using the net-substitution approach defined in EN 15804+A2 / EN 16757.

CO_2 uptake by carbonation of concrete after demolition (crushing, storage and disposal) is included in Modules C3–C4 in accordance with EN 16757 / EN 15804+A2.

LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data	I-IX 2025

DECLARED AND FUNCTIONAL UNIT

Declared Unit	1 t
Mass per Declared Unit	1 t

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in the product, kg C:	–

SYSTEM BOUNDARY

The EPD scope is "cradle-to-gate with options" in accordance with EN 15804. The study covers the product stage A1–A3 and additionally includes selected optional life-cycle modules: A4 (transport to the construction site), B1 (use stage – CO_2 uptake by carbonation), C1–C4 (end-of-life: deconstruction, waste transport, waste processing and disposal), and D (benefits and loads beyond the system boundary from material recovery / avoided burdens).

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	X	MNR	MNR	MNR	MNR	MNR	MNR	X	X	X	X	X
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deinstallation/Demolition	Transport	Waste processing	Disposal	Reuse / Recycling

X – module included/declared
MND – Module Not Declared
MNR – Module Not Relevant

CUT-OFF CRITERIA

The study fully covers all mandatory EN 15804:2012+A2:2019 modules and processes. No hazardous materials or substances have been omitted from the system boundary.

All major raw material and energy inputs are included. All inputs and outputs from unit processes for which data are available are taken into account in the calculations. No single neglected unit process exceeds 1% of the total mass or energy flows. The total of all neglected input and output flows does not exceed 5% of the total mass or energy use.

The production of capital goods (equipment), construction of infrastructure, and the maintenance and operation of capital equipment are excluded. Personnel-related activities, as well as energy and water use associated with company management and sales/administrative activities, are also excluded.

ESTIMATES AND ASSUMPTIONS

The LCA was carried out in accordance with EN 15804+A2, applying standard rules for indicators, system boundaries, data quality, allocation and cut-off. Carbonation-related CO_2 uptake is modelled in line with EN 16757. The main modelling assumptions are:

Declared product and data basis: Results refer to 1 tonne of an averaged reinforced-concrete precast product representing Bürkle's declared assortment. Foreground data for materials, energy use and logistics are based on company-specific operational records for the period I–IX 2025 (production) and 2024 (energy inventory), while background processes follow EN 15804+A2-compliant datasets.

Raw material modelling (A1): A full mass balance was applied using manufacturer data for concrete constituents and reinforcement steel. Minor auxiliary materials (admixtures, inserts, release agents) are included where relevant.

Transport modelling (A2, A4, C2): Road transport is modelled with EURO 6 heavy-duty trucks. Supply transport to the plant reflects actual Bürkle supply routes. Transport to site is assumed as an average 250 km. End-of-life transport is assumed as 80 km.

Manufacturing energy (A3): Electricity, LPG for heating/curing, and diesel (ON) for internal vehicles are included based on real plant data. Reinforcement offcuts are recycled; concrete residues and wash-out follow standard inert waste practice.

Use stage carbonation (B1): Carbonation CO_2 uptake was modelled according to EN 16757 (Annex BB) using a default (less detailed) scenario without project-specific inputs. The products were assumed to be used in buildings; therefore a 50-year reference service life and an average exposed surface of 6 m^2/m^3 were applied under conservative exposure conditions. Post-demolition carbonation was included with default end-of-life parameters: in C3, 3 months of outdoor storage of crushed concrete exposed to rain with a representative particle size/geometry of about 150 mm and radial carbonation; in C4, 100 years of in-ground carbonation. Carbonation already occurring in earlier life-cycle stages was accounted for to avoid double counting.

End-of-life scenario (C1–C4): Standard mechanical demolition is assumed (36 MJ/t). Concrete recycling to RCA is set to 95%, with the remaining 5% landfilled as inert waste. Reference recycling parameters are used for reinforcement steel.

Beyond-system benefits (D): Credits are calculated using the net-substitution approach for recycled steel scrap and for substitution of natural aggregates by RCA from the recycled concrete fraction.

Post-demolition carbonation: CO_2 uptake by carbonation of concrete after demolition (crushing, storage and disposal) is included in C3–C4 in line with EN 16757 / EN 15804+A2.

ALLOCATION

Allocation was carried out in accordance with EN 15804+A2. Primary (foreground) production data were collected for Bürkle's reinforced-concrete precast portfolio and allocated to the declared unit (1 t of an averaged precast product) on a mass basis, as the manufacturing processes and resource use are shared across the declared product categories. Where secondary/background processes are used, allocation follows the rules embedded in the respective EN 15804+A2-compliant datasets.

DATA QUALITY

Regarding primary data, the LCA is based on high-quality foreground data collected by Bürkle for the reference period I–IX 2025 (material purchase records, internal production volumes, electricity and fuel consumption, and real transport/logistics information). Due to major modernization and process-upgrading investments completed at the end of 2024, Bürkle management decided that, to ensure maximum representativeness of the EPD, the study should rely on operational data from the post-modernization period. Therefore, nine months of 2025 were selected as the reference timeframe. These data are complete, site-specific, and representative for the declared averaged product mix.

Upstream cement data were sourced from a supplier self-declaration (industry EPD tool output) aligned with EN 15804+A2. The dataset is not externally verified and is treated as background data.

The LCA calculations were performed using the GCCA Concrete EPD Tool (International v5.2), which is pre-verified for EN 15804+A2 compliance. The tool implements an EN 15804+A2-consistent LCA model and embedded background datasets, including ecoinvent v3.10 (system model: Allocation, cut-off by classification) and sectoral EPD proxies. Background data are therefore derived from the tool's internal database framework, unless supplier-specific datasets are stated otherwise.

Electricity modelling in A3 reflects the current Polish grid emission factors published by KOBiZE (National Centre for Emissions Management and Balancing, December 2024).

GEOGRAPHIC REPRESENTATIVENESS

The product system is manufactured and managed in Poland (Europe).

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2 – [DU=1t]

Impact category	Unit	A1	A2	A3	A1-A3	A4	B1-B7	C1	C2	C3	C4	D
GWP-Total	kg CO2 eq.	2,47E+02	6,53E+00	1,36E+01	2,67E+02	2,50E+01	-2,03E+00	3,52E+00	1,51E+01	1,04E+01	-3,68E-01	-8,70E+01
GWP-fossil	kg CO2 eq.	2,47E+02	6,52E+00	1,36E+01	2,67E+02	2,50E+01	-2,03E+00	3,52E+00	1,51E+01	1,04E+01	-3,68E-01	-8,70E+01
GWP-biogenic	kg CO2 eq.	1,69E-01	4,03E-04	2,41E-02	1,94E-01	1,06E-03	0,00E+00	3,85E-04	3,36E-04	4,11E-03	5,22E-06	-1,62E-02
GWP-luluc	kg CO2 eq.	1,92E-01	2,68E-03	1,68E-03	1,96E-01	1,04E-02	0,00E+00	3,06E-04	5,98E-03	4,37E-03	1,02E-05	-4,50E-02
ODP	kg CFC-11 eq.	1,37E-06	1,02E-07	1,16E-07	1,59E-06	4,02E-07	0,00E+00	5,39E-08	2,10E-07	1,26E-07	8,75E-10	-4,31E-07
AP	mol H+ eq.	7,74E-01	1,73E-02	9,97E-02	8,91E-01	6,37E-02	0,00E+00	3,18E-02	5,02E-02	8,80E-02	3,67E-04	-3,38E-01
EP-freshwater	kg P eq.	1,59E-02	1,71E-04	1,28E-03	1,74E-02	6,60E-04	0,00E+00	3,35E-05	3,85E-04	4,36E-04	4,06E-07	-1,04E-02
EP-marine	kg N eq.	1,39E-01	4,60E-03	1,40E-02	1,58E-01	1,62E-02	0,00E+00	1,47E-02	1,63E-02	3,10E-02	1,61E-04	-7,51E-02
EP-terrestrial	mol N eq.	1,88E+00	4,99E-02	1,48E-01	2,08E+00	1,75E-01	0,00E+00	1,61E-01	1,77E-01	3,36E-01	1,76E-03	-8,12E-01
POCP	kg NMVOC eq.	6,43E-01	2,57E-02	4,83E-02	7,17E-01	9,64E-02	0,00E+00	4,81E-02	6,99E-02	9,97E-02	5,53E-04	-2,82E-01
ADPE (disc.2)	kg Sb eq.	7,67E-04	1,92E-05	2,13E-05	8,07E-04	7,23E-05	0,00E+00	1,29E-06	4,95E-05	2,71E-05	3,45E-08	-2,80E-04
ADPF (disc.2)	MJ, (NCV)	1,82E+03	9,68E+01	1,59E+02	2,08E+03	3,76E+02	0,00E+00	4,61E+01	2,11E+02	1,43E+02	7,45E-01	-8,96E+02
WDP (disc.2)	m3 eq.	5,60E+01	4,57E-01	1,18E+00	5,77E+01	1,80E+00	0,00E+00	1,13E-01	9,50E-01	8,87E-01	1,95E-03	-4,57E+01
Acronyms	GWP-total – Climate change, total global warming potential; GWP-fossil – Climate change, fossil fuels; GWP-biogenic – Climate change, biogenic carbon; GWP-luluc – Climate change, land use and land use change; ODP – Ozone layer depletion; AP – Acidification of terrestrial and freshwater environments; EP-freshwater – Eutrophication, freshwater; EP-marine – Eutrophication, marine; EP-terrestrial – Eutrophication, terrestrial; POCP – Photochemical ozone formation (smog formation); ADPE – Abiotic depletion, minerals and metals; ADPF – Abiotic depletion, fossil fuels; WDP – Water scarcity (water use deprivation potential); NCV - net calorific value.											
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF – [DU=1t]

Impact category	Unit	A1	A2	A3	A1-A3	A4	B1-B7	C1	C2	C3	C4	D
PM	Disease Incidence	1,24E-05	6,11E-07	1,99E-07	1,32E-05	2,45E-06	0,00E+00	9,03E-07	1,19E-06	1,74E-06	9,81E-09	-7,26E-06
IRP (disc.1)	kBq U235 eq.	4,46E+00	8,47E-02	1,10E-01	4,66E+00	3,32E-01	0,00E+00	2,06E-02	1,74E-01	4,20E-01	4,04E-04	-2,82E+00
ETP-fw (disc.2)	CTUe	3,01E+03	2,37E+01	3,38E+01	3,07E+03	9,04E+01	0,00E+00	6,53E+00	5,63E+01	2,66E+01	1,04E-01	-2,67E+03
HTP-c (disc.2)	CTUh	8,24E-06	3,29E-08	1,39E-08	8,29E-06	1,29E-07	0,00E+00	1,38E-08	7,80E-08	3,31E-08	1,81E-10	-8,01E-06
HTP-nc (disc.2)	CTUh	4,73E-06	6,29E-08	6,41E-08	4,86E-06	2,47E-07	0,00E+00	6,28E-09	1,35E-07	7,08E-08	1,18E-10	-1,13E-06
SQP (disc.2)	Dimensionless	8,28E+02	9,05E+01	4,66E+01	9,65E+02	3,78E+02	0,00E+00	3,24E+00	1,26E+02	3,12E+01	7,50E-01	-3,21E+02
Acronyms	PM – Particulate matter emissions (potential incidence of disease);IRP – Ionising radiation, human health exposure potential; ETP-fw – Ecotoxicity, freshwater; HTP-c – Human toxicity, cancer effects; HTP-nc – Human toxicity, non-cancer effects; SQP – Land use related impacts, soil quality.											
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.											
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.											

USE OF NATURAL RESOURCES – [DU=1t]

Impact category	Unit	A1	A2	A3	A1-A3	A4	B1-B7	C1	C2	C3	C4	D
PERE	MJ, (NCV)	1,18E+02	1,28E+00	2,31E+01	1,42E+02	4,94E+00	0,00E+00	2,83E-01	2,77E+00	6,84E+00	5,73E-03	-5,48E+01
PERM	MJ, (NCV)	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
PERT	MJ, (NCV)	1,18E+02	1,28E+00	2,31E+01	1,42E+02	4,94E+00	0,00E+00	2,83E-01	2,77E+00	6,84E+00	5,73E-03	-5,48E+01
PENRE	MJ, (NCV)	1,80E+03	9,68E+01	1,59E+02	2,06E+03	3,76E+02	0,00E+00	4,61E+01	2,11E+02	1,43E+02	7,45E-01	-8,96E+02
PENRM	MJ, (NCV)	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
PENRT	MJ, (NCV)	1,80E+03	9,68E+01	1,59E+02	2,06E+03	3,76E+02	0,00E+00	4,61E+01	2,11E+02	1,43E+02	7,45E-01	-8,96E+02
SM	kg	6,30E+01	0,00E+00	0,00E+00	6,30E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ, (NCV)	4,64E+01	0,00E+00	0,00E+00	4,64E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ, (NCV)	8,10E+01	0,00E+00	0,00E+00	8,10E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	2,68E+00	1,39E-02	-9,32E-03	2,69E+00	5,53E-02	0,00E+00	2,99E-03	2,73E-02	1,22E-01	4,06E-04	-9,20E-01
Acronyms	PERE – Use of renewable primary energy as energy carriers; PERM – Use of renewable primary energy resources as raw materials; PERT – Total use of renewable primary energy resources (PERE + PERM); PENRE – Use of non-renewable primary energy as energy carriers; PENRM – Use of non-renewable primary energy resources as raw materials; PENRT – Total use of non-renewable primary energy resources (PENRE + PENRM); SM – Use of secondary material; RSF – Use of renewable secondary fuels; NRSF – Use of non-renewable secondary fuels; FW – Net use of fresh water; NCV - net calorific value.											

OUTPUT FLOWS – [DU=1t]

Impact category	Unit	A1	A2	A3	A1-A3	A4	B1-B7	C1	C2	C3	C4	D
CRU	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
MFR	kg	0,00E+00	0,00E+00	9,50E+02	9,50E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	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
EEE	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
Acronyms	CRU – Components for re-use; MFR – Materials for recycling; MER – Materials for energy recovery; EEE – Exported electrical energy											

WASTE – [DU=1t]

Impact category	Unit	A1	A2	A3	A1-A3	A4	B1-B7	C1	C2	C3	C4	D
HWD	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
NHWD	kg	7,84E-03	0,00E+00	5,87E+00	5,88E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,00E+01	0,00E+00
RWD	kg	3,48E-02	2,07E-05	2,53E-05	3,48E-02	8,12E-05	0,00E+00	5,06E-06	4,25E-05	1,02E-04	9,87E-08	-6,99E-04
Acronyms	HWD – Hazardous waste disposed; NHWD – Non-hazardous waste disposed; RWD – Radioactive waste disposed.											

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Source and quality of electricity data	Emission Factors for Electricity in Poland reported in December 2024 by KOBiZE - the National Centre for Emissions Management in Poland
Electricity CO_2 / kWh	0.701 kg CO_2e / kWh

BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

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EN 16757:2017 Sustainability of construction works – Environmental product declarations – Product Category Rules for concrete and concrete elements.

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Multicert Sp. z o.o. (current version). General Programme Instructions of the EPD Polska Programme, Warsaw, Poland.

EPD VERIFICATION:

The verification procedure of this Environmental Product Declaration (EPD) was carried out in accordance with ISO 14025. The EPD is valid for five years from the date of publication and may be updated earlier in case of significant changes. Renewal of validity requires review and, if necessary, updating.

EPD CONTRIBUTORS

Manufacturer representative	Waldemar Kruszelnicki Dawid Owsiak
EPD verifier	Izabela Sztamberek-Sochan, Ph.D.

Note: The sole ownership, liability, and liability of this declaration are with the owner. Construction product declarations may not be comparable if they do not comply with EN 15804. For detailed information on comparability, please refer to EN 15804 and ISO 14025.

EPD POLSKA CERTIFICATE

Program EPD Polska
Operator: MULTICERT Sp. z o.o.

Bürkle

CERTIFICATE

TYPE III EPD DECLARATION

(ENVIRONMENTAL PRODUCT DECLARATION)

Reg. No. EPD-P 06.11.2025

EPD Environmental Product Declaration
EPD VERIFIED
EPD POLAND

This document confirms that the Environmental Product Declaration developed by **Bürkle Spółka z o.o.** for

REINFORCED CONCRETE PRECAST ELEMENTS

manufactured in accordance with standards:
EN 13369 and EN 14843, EN 13747, EN 13225, EN 14992 EN 15258
meets the requirements of standards **EN 15804:2012+A2:2019**, **EN 16757** and **ISO 14025**, and that the data contained therein has been prepared correctly.

The Declaration was published on November 28, 2025 and is valid until November 28, 2030, or until it is deregistered or its publication on the website www.epd.org.pl is discontinued.

Authenticity of this certificate can be confirmed in.
the public register at www.epd.org.pl

Izabela Sztamberek-Sochan, Ph.D.
EPD Polska Verifier

MULTICERT JEDNOSTKA CERTYFIKACYJNA

Grzegorz Suwara
CEO Multicert Sp. z o.o.

Warsaw, November 28, 2025