

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Sanitaryware

EPD HUB, EPD number HUB-2109
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Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

LAUFEN

GENERAL INFORMATION

MANUFACTURER

Manufacturer	LAUFEN
Address	Wahlenstrasse 46, 4242 Laufen CH
Contact details	info@es.laufen.com
Website	www.laufen.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A5*, and modules C1-C4, D
EPD author	Sílvia Guillem (Sustainability Department, Roca Group)
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour as an authorized verifier for EPD Hub

This EPD is intended for business-to-business communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. 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.

PRODUCT

Product name	Sanitaryware
Additional labels	-
Product reference	-
Place(s) of raw material origin	Austria, Belgium, China, Czech Republic, Finland, France, Germany, Poland, Portugal, Spain, Switzerland, United Kingdom
Place of production	Bechyně (Czech Republic), Gliwice (Poland), Gmunden (Austria), Laufen (Switzerland), Leiria (Portugal), Tangshan (China)
Place(s) of installation and use	Worldwide
Period for data	Calendar Year 2025
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	89,2

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg of sanitaryware
Declared unit mass	1 kg
Mass of packaging	0,077 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1,24
GWP-total, A1-A3 ($kgCO_2e$)	1,13
Secondary material, inputs (%)	0,03
Total energy use, A1-A3 (kWh)	6,96
Net freshwater use, A1-A3 (m^3)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

LAUFEN is dedicated to the production and sale of bathroom solutions that enrich people's everyday lives by creating unique spaces for wellbeing, personal care and health.

LAUFEN is the premium brand of Roca Group, a family-owned global enterprise driven by the Purpose of contributing to the well-being of society by delivering solutions that enhance everyday spaces, while caring for People and the Planet, and fostering Prosperity. Its commitment to sustainable development is deeply rooted in the organization—both as a strategic priority and through concrete actions. It is reflected in initiatives that translate this ambition into measurable improvements, ensuring that its day-to-day operations consistently contribute to a more positive and lasting impact.

Further information can be found at www.laufen.com and www.rocagroup.com

PRODUCT DESCRIPTION

The declared EPD comprises sanitaryware manufactured from a homogeneous ceramic body based on natural minerals, including clay, feldspar, kaolin, quartz and silica sand. The production process consists of slip preparation, casting, drying, enameling and firing, followed by finishing operations.

The products are designed for sanitary applications in residential, commercial and public buildings, offering high durability, low water absorption and resistance under normal conditions of use.

This EPD covers multiple product typologies with different dimensions and weights; however, all share equivalent material composition and manufacturing technology. To ensure representativeness across the different product types, the declared unit is 1 kg of finished product. The average weights of the main product categories are presented in the table below:

Product	Average weight (kg/unit)
Bides (floor-standing)	23,0
Bides (wall-hung)	16,0
Cisterns	13,0
Urinals	14,0
Washbasins	14,5
WC (floor-standing)	17,0
WC (wall-hung)	19,0

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	100	Asia, Europe
Fossil materials	0	-
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,0002
Biogenic carbon content in packaging, kg C	-0,0311

1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg of sanitaryware
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

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	ND	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND

A5 is not fully declared. Waste processing (from collection through to end-of-waste or final disposal) and full energy and biogenic carbon balancing are accounted for. Storage, product wastage, and installation into the building are excluded.

MANUFACTURING AND PACKAGING (A1-A3)

The product is composed primarily of feldspar, clay, kaolin, quartz and silica sand included as raw materials extracted and processed prior to delivery to the manufacturing sites (A1). Raw materials are transported to the facilities by lorry up to 1.556 km and by ship up to 2.500 km from World and European suppliers (A2).

Manufacturing involves slip casting, drying, enamelling, kiln firing of the ceramic body, final inspection and assembly across multiple sites. Electricity and natural gas are consumed during manufacturing to power kilns, drying equipment, and general facility operations. The use of renewable energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD. All European manufacturing facilities are supplied with renewable electricity, and the majority have on-site photovoltaic installations. Its use is ensured throughout the validity period of this EPD. Energy losses during electricity transmission are considered. The product is packaged in corrugated board boxes and low-density polyethylene packaging film. Moulds and tap water are used as ancillary materials during manufacturing. Waste from spent moulds is 100% directed to inert material landfill. Wastewater is 100% directed to wastewater treatment, with no transport required for waste collection. Production losses were considered negligible (beneath cut-off) for the product and were therefore excluded from the LCA model (A3).

TRANSPORT AND INSTALLATION (A4-A5)

A5* partially declared - includes only packaging waste processing.

PRODUCT END OF LIFE (C1-C4, D)

Deconstruction is assumed to be carried out manually for the product, and thus its energy requirements and impacts were considered negligible (beneath cut-off) for this study (C1). Waste materials are transported up to 50 km by lorry to treatment facilities (C2). Inert waste is 100% directed to sanitary landfill. A conservative end-of-life approach has been adopted for the sanitaryware product itself. Although recovery, reuse or recycling routes may be available in certain markets, reliable and representative information on actual end-of-life management practices across all countries and customer groups is not available. To avoid overestimating potential environmental benefits, it has therefore been assumed that 100% of the product is disposed of in landfill at end of life. This assumption is considered to provide a robust and conservative representation of the product's end-of-life scenario.

Post-consumer waste is modelled using the cut-off approach in accordance with EN 15804+A2, whereby no upstream burdens from the previous product system are allocated to incoming secondary materials; burdens associated with waste treatment are borne by the product system generating the waste up to the end-of-waste state. The declared end-of-life scenarios reflect current practice and are considered representative of one of the most probable alternatives for the stated region(s).

In module D, the environmental benefits arising from the substitution of virgin cardboard by recovered secondary cardboard beyond the end-of-waste state are declared, alongside the loads associated with further processing. The recycling of cardboard packaging displaces the production of virgin containerboard, with recovered material assumed to substitute primary corrugated board box production. Benefits and loads for packaging waste treatment are also declared in module D.

Recovered secondary high-density polyethylene from plastic packaging is assumed to substitute primary high-density polyethylene granulate production, reflecting the recycling fraction of plastic packaging waste. The module D scenario for cardboard packaging is modelled as a weighted average across all manufacturing sites included in this EPD, with 83% directed to recycling and the remainder split between incineration and landfill, based on Eurostat data. The module D scenario for plastic packaging similarly reflects a weighted average, with 40% recycled, 37% incinerated, and 23% landfilled, based on Eurostat data (D).

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Not applicable
Ancillary materials	Physical Properties
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple factories
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	-

The EPD represents ceramic sanitaryware products manufactured at the production facilities included within the scope of the study. All products have the same intended function and follow comparable manufacturing processes, including casting, drying, enamelling and firing. Site-specific primary data are used to account for differences in energy consumption and sources, ancillary materials, and waste generation. Results from the different products and manufacturing facilities are combined according to their respective production volumes to provide a representative production-weighted result. The declared unit is 1 kg of finished ceramic sanitaryware product.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	5,58E-02	8,00E-02	9,91E-01	1,13E+00	ND	6,02E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,56E-03	0,00E+00	9,64E-03	-6,79E-03
GWP – fossil	kg CO_2e	5,51E-02	7,99E-02	1,10E+00	1,24E+00	ND	6,04E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,55E-03	0,00E+00	9,65E-03	-5,24E-03
GWP – biogenic	kg CO_2e	6,19E-04	1,83E-05	-1,14E-01	-1,13E-01	ND	-1,72E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,28E-06	0,00E+00	-1,41E-05	-1,54E-03
GWP – LULUC	kg CO_2e	6,67E-05	3,58E-05	3,33E-03	3,43E-03	ND	1,72E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,47E-06	0,00E+00	2,25E-06	-8,69E-06
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,45E-09	1,16E-09	4,73E-08	4,99E-08	ND	2,91E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,07E-11	0,00E+00	3,54E-10	-1,83E-10
Acidification potential	mol H^+e	2,97E-04	3,35E-04	1,97E-03	2,60E-03	ND	1,29E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,93E-05	0,00E+00	1,08E-04	-2,55E-05
EP-freshwater[2)]	kg Pe	2,29E-05	8,49E-06	1,39E-04	1,70E-04	ND	6,65E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,02E-07	0,00E+00	1,68E-05	-2,47E-06
EP-marine	kg Ne	5,16E-05	1,05E-04	6,72E-04	8,29E-04	ND	1,32E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,38E-06	0,00E+00	2,76E-05	-4,40E-06
EP-terrestrial	mol Ne	5,33E-04	1,15E-03	5,36E-03	7,04E-03	ND	4,25E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,90E-05	0,00E+00	2,96E-04	-4,36E-05
POCP (“smog”)[3)]	kg NMVOCe	1,80E-04	4,45E-04	2,26E-03	2,89E-03	ND	1,61E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,83E-05	0,00E+00	1,08E-04	-2,10E-05
ADP-minerals & metals[4)]	kg Sbe	2,84E-07	2,24E-07	7,82E-06	8,33E-06	ND	1,87E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-08	0,00E+00	1,70E-08	-1,42E-08
ADP-fossil resources	MJ	9,30E-01	1,14E+00	1,76E+01	1,97E+01	ND	2,58E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,92E-02	0,00E+00	2,29E-01	-1,17E-01
Water use[5)]	m^3e depr.	6,74E-02	6,55E-03	2,44E-01	3,18E-01	ND	7,77E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,62E-04	0,00E+00	1,09E-02	-1,52E-03

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	1,16E-01	1,56E-02	5,35E+00	5,49E+00	ND	-1,15E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-03	0,00E+00	4,52E-03	-1,66E-02
Renew. PER as material	MJ	0,00E+00	0,00E+00	9,48E-01	9,48E-01	ND	-9,48E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,09E-03
Total use of renew. PER	MJ	1,16E-01	1,56E-02	6,30E+00	6,43E+00	ND	-2,10E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,10E-03	0,00E+00	4,52E-03	-9,49E-03
Non-re. PER as energy	MJ	9,30E-01	1,14E+00	1,75E+01	1,96E+01	ND	-9,54E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,92E-02	0,00E+00	2,29E-01	-1,17E-01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	1,31E-01	1,31E-01	ND	-1,31E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,91E-02
Total use of non-re. PER	MJ	9,30E-01	1,14E+00	1,76E+01	1,97E+01	ND	-2,26E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,92E-02	0,00E+00	2,29E-01	-7,82E-02
Secondary materials	kg	3,04E-04	4,77E-04	7,59E-02	7,67E-02	ND	4,43E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,32E-05	0,00E+00	7,35E-05	1,01E-03
Renew. secondary fuels	MJ	3,54E-06	6,08E-06	7,09E-03	7,10E-03	ND	2,71E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,33E-07	0,00E+00	1,39E-06	7,36E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,57E-03	1,61E-04	5,63E-03	7,36E-03	ND	-1,66E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,14E-05	0,00E+00	-2,75E-03	-3,52E-05

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	6,04E-03	7,13E-03	1,65E-01	1,79E-01	ND	1,01E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,07E-04	0,00E+00	1,02E-03	-6,33E-04
Non-hazardous waste	kg	1,78E-01	1,41E-01	5,94E+00	6,26E+00	ND	3,30E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,00E-02	0,00E+00	3,25E+00	-3,09E-02
Radioactive waste	kg	3,10E-06	2,25E-07	5,75E-06	9,08E-06	ND	1,80E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-08	0,00E+00	7,18E-08	-2,68E-07

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	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	0,00E+00	0,00E+00	ND	6,26E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	7,03E-03	ND	ND	ND	ND	ND	ND	ND	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	ND	4,68E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	1,94E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	2,74E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	5,50E-02	7,95E-02	1,10E+00	1,24E+00	ND	1,46E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,52E-03	0,00E+00	9,56E-03	-5,16E-03
Ozone depletion Pot.	kg $CFC_{-11}e$	1,21E-09	9,26E-10	4,00E-08	4,22E-08	ND	2,39E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,44E-11	0,00E+00	2,81E-10	-1,46E-10
Acidification	kg SO_2e	2,48E-04	2,58E-04	1,55E-03	2,06E-03	ND	9,87E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,47E-05	0,00E+00	8,68E-05	-2,14E-05
Eutrophication	kg PO_4^3e	3,63E-05	6,15E-05	5,75E-04	6,73E-04	ND	1,07E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,99E-06	0,00E+00	1,47E-05	-4,40E-06
POCP (“smog”)	kg C_2H_4e	1,49E-05	2,05E-05	1,42E-04	1,78E-04	ND	3,10E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,28E-06	0,00E+00	5,66E-06	-1,78E-06
ADP-elements	kg Sbe	2,25E-07	2,19E-07	7,01E-06	7,45E-06	ND	1,83E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,55E-08	0,00E+00	1,63E-08	-1,38E-08
ADP-fossil	MJ	7,17E-01	1,12E+00	1,72E+01	1,91E+01	ND	2,47E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,82E-02	0,00E+00	2,24E-01	-9,89E-02

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted, Spain, Ecoinvent, 0.0727 kgCO2e/kWh
2. Heat production, natural gas, at industrial furnace >100kW, europeWithoutSwitzerland, Ecoinvent, 0.0741 kgCO2e/MJ
3. Heat production, natural gas, at industrial furnace >100kW, World, Ecoinvent, 0.0742 kgCO2e/MJ
4. Market for electricity, medium voltage, southWestChinaGrid, Ecoinvent, 0.38 kgCO2e/kWh
5. Electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted, renewable energy produc, Switzerland, Ecoinvent, 0.0931 kgCO2e/kWh
6. Electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted, Austria, Ecoinvent, 0.11 kgCO2e/kWh
7. Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted, Portugal, Ecoinvent, 0.0618 kgCO2e/kWh
8. Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted, Poland, Ecoinvent, 0.0877 kgCO2e/kWh

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	-
Water use (m^3)	-
Ancillary materials: type and mass (kg)	-
Waste materials: type and mass (kg)	- PE, 0.003 kg - Cardboard, 0.074 kg
Waste materials: output routes	- PE, World, 0.003 kg (37% incineration with energy recovery, 40% recycling, 23% landfill, based on Eurostat) - Cardboard, EU, 0.074 kg (8% incineration with energy recovery, 83% recycling, 9% landfill, based on Eurostat)
Direct emissions (kg)	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	0,0
Collection process: Mixed waste (kg)	1,0
Recovery: re-use (kg)	0,0
Recovery: recycling (kg)	0,0
Recovery: energy recovery (kg)	0,0
Disposal (kg)	1,0
Scenario assumptions e.g. transportation (mode, km) & other	Inert, Landfill, Lorry >32t EURO5, 50 km

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Yazan Badour as an authorized verifier for EPD Hub Limited 13.11.2026

