



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-2352

Published on 28.11.2024, last updated on 28.11.2024, valid until 28.11.2029

Litera Surface
Luceco Plc



MANUFACTURER AND SITE

Manufacturer	Luceco Plc
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Contact details	simon.shenton@luceco.com
Website	www.luceco.com
Place of production	NO.1438, Jiachuang Road, Xiuzhou Industrial Park, Jiaxing, Zhejiang, China 3140313
Period for data	2023

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2 and ISO 14025
PCR	EPD Hub Core PCR version 1.1, 5 Dec 2023
Sector	Electrical product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Thomas Cotton - Luceco Plc
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited

PRODUCT SPECIFICATION

Product name	Litera Surface
Product number / reference	LITS
Product description	Designed for versatility, the Litera comes in Surface and Suspended installation models, providing seamless integration into any environment. With its continuous lighting system and extruded aluminium body, the Litera ensures efficiency, low power consumption, and high performance, delivering optimal illumination for various applications. Slim aluminium extrusion finished in RAL9016, offers superior quality lighting for any commercial or educational environment, including compliance with semi-cylindrical illuminance values. This complete solution offers blank infill sections, with through wiring as standard and options for emergency and wireless lighting controls

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 CLASSIFICATION

Declared operating voltage, Volt	240
Light source color temperature, Kelvin	4000
Protection index for water and dust (IP)	40
Impact resistance index (IK)	05
Luminous flux, Lumen	3600
Electrical power, Watt	29
Luminous efficiency, Lm/W	124
Additional characteristic	

ABOUT THE MANUFACTURER

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass, kg	4.81
Mass of packaging, kg	1.337
Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 3,600 lumens during a reference lifetime of 50,000 hours
Reference service life	12.5
Assigned lifetime	50000
Global Warming Potential A1-A3	
GWP-total (kg CO ₂ e)	1.10E+02
GWP-fossil (kg CO ₂ e)	1.12E+02
GWP-biogenic (kg CO ₂ e)	-1.96E+00
GWP-luluc	9.00E-02

LIFE CYCLE ASSESSMENT

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	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Raw materials																		Reuse, Recovery, Recycling
Transport																		Disposal
Manufacturing																		Waste processing
Transport																		Transport
Assembly																		Deconstr./demo.
Use																		
Maintenance																		
Repair																		
Replacement																		
Refurbishment																		
Operational energy use																		
Operational water use																		

Modules not declared = MND.

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. 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.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

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 materials	Not applicable
Ancillary materials	Allocated by mass
Manufacturing energy and waste	Allocated by mass

AVERAGES AND VARIABILITY

This EPD is product and factory-specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

The LCA and EPD have been prepared according to the reference standards, EN 50693, and ISO 14040/14044. Ecoinvent v3.8 and One Click LCA databases were used as sources of environmental data.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	81	CH
Minerals	0	
Fossil materials	12	CH
Bio-based materials	0	
Electronic parts	7	CH

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.5345

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

MANUFACTURING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production. The material losses occurring during the manufacturing processes are treated as per the waste handling practices in the factory, while scenario assumptions are made in the absence of exact data. The study also considers the fuels used by machines as well as losses during electricity transmission.

The product is made of metals, plastics, and electronic components. All components are transported to the production facility, where the main manufacturing processes are associated with

assembly of different parts and components. The finished product is packaged with polyethylene, cardboard, and/or paper as packaging material before being sent to customers.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation distances from manufacturing sites to customer locations are based on sales volume-based weighted averages. In the absence of exact data, conservative assumptions are made (A4). Environmental impacts from installation include waste packaging materials (A5). The impacts of energy consumption and the used ancillary materials during installation are considered negligible.

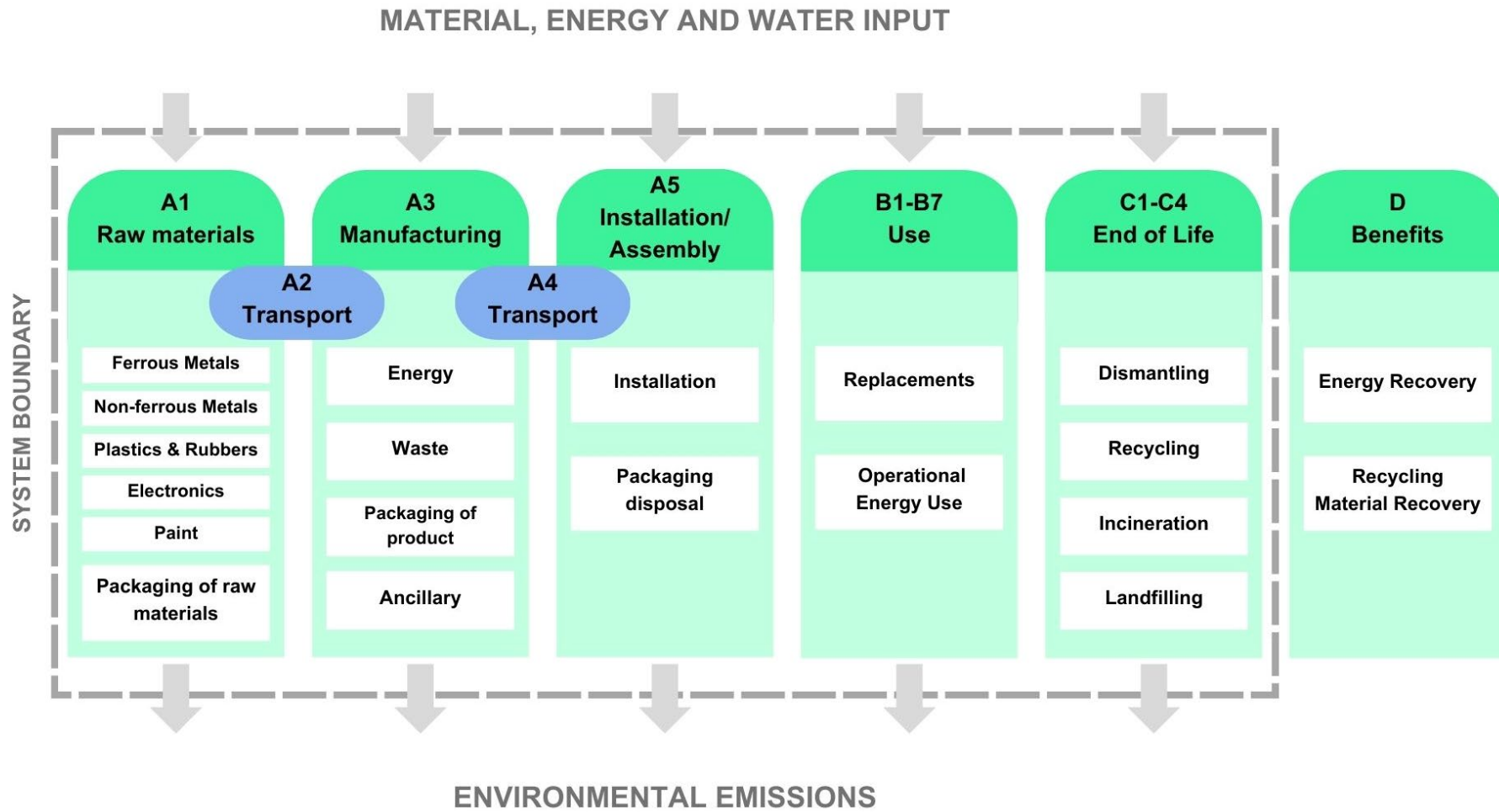
PRODUCT USE AND MAINTENANCE (B1-B7)

During the use phase, the product consumes electricity (B6). Impacts due to electricity production include direct emissions to air, transformation, and transmission losses.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. It is assumed that the waste is collected separately and transported to the waste treatment centre. The transportation method is assumed to be lorry (C2). According to EN 50693:2019, the sequence of treatment operations occurring to the product shall include de-pollution, fractions separation and preparation (dismantling, crushing, shredding, sorting), recycling, other material recovery, energy recovery and disposal. In this study, the default values from table G.4 of EN 50693 is used for treating materials in different waste treatment methods. Due to the material and energy recovery potential of parts in the lighting system, the end-of-life product is converted into recycled raw materials, while the energy recovered from incineration displaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in Module D.

LIFE CYCLE FLOW DIAGRAM



ENVIRONMENTAL IMPACT DATA, RESULTS PER DECLARED UNIT

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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 ₂ e	1.06E+02	5.91E-02	3.75E+00	1.10E+02	1.48E+00	2.03E+00	MNR	MNR	MNR	4.47E+00	MNR	5.68E+02	MNR	0.00E+00	1.28E-01	6.82E-01	6.11E-01	-4.75E+01
GWP – fossil	kg CO ₂ e	1.06E+02	5.91E-02	5.70E+00	1.12E+02	1.48E+00	6.97E-02	MNR	MNR	MNR	4.46E+00	MNR	5.67E+02	MNR	0.00E+00	1.28E-01	6.81E-01	6.11E-01	-4.75E+01
GWP – biogenic	kg CO ₂ e	0.00E+00	0.00E+00	-1.96E+00	-1.96E+00	0.00E+00	1.96E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – LULUC	kg CO ₂ e	8.07E-02	2.18E-05	9.27E-03	9.00E-02	9.22E-04	3.67E-05	MNR	MNR	MNR	1.83E-03	MNR	1.32E+00	MNR	0.00E+00	5.23E-05	1.42E-04	4.99E-05	-1.06E-02
Ozone depletion pot.	kg CFC ₁₁ e	3.66E-06	1.36E-08	1.96E-07	3.87E-06	3.06E-07	9.24E-09	MNR	MNR	MNR	9.22E-08	MNR	2.83E-05	MNR	0.00E+00	2.83E-08	1.02E-08	5.67E-09	-1.40E-06
Acidification potential	mol H ⁺ e	8.81E-01	2.50E-04	2.91E-02	9.10E-01	3.42E-02	3.06E-04	MNR	MNR	MNR	2.28E-02	MNR	3.07E+00	MNR	0.00E+00	5.31E-04	1.12E-03	2.87E-04	-4.48E-01
EP-freshwater ²⁾	kg Pe	8.04E-03	4.84E-07	2.48E-04	8.29E-03	7.17E-06	1.23E-06	MNR	MNR	MNR	1.67E-04	MNR	6.02E-02	MNR	0.00E+00	1.08E-06	4.48E-06	8.78E-07	-2.92E-03
EP-marine	kg Ne	1.17E-01	7.43E-05	7.32E-03	1.24E-01	8.46E-03	2.88E-04	MNR	MNR	MNR	4.27E-03	MNR	4.19E-01	MNR	0.00E+00	1.55E-04	2.69E-04	1.04E-04	-5.28E-02
EP-terrestrial	mol Ne	1.27E+00	8.20E-04	6.65E-02	1.34E+00	9.40E-02	9.05E-04	MNR	MNR	MNR	4.74E-02	MNR	4.76E+00	MNR	0.00E+00	1.71E-03	3.01E-03	1.04E-03	-5.89E-01
POCP (“smog”) ³⁾	kg NMVOCe	3.73E-01	2.62E-04	1.69E-02	3.90E-01	2.47E-02	3.29E-04	MNR	MNR	MNR	1.26E-02	MNR	1.29E+00	MNR	0.00E+00	5.20E-04	8.06E-04	2.91E-04	-1.73E-01
ADP-minerals & metals ⁴⁾	kg Sbe	1.52E-03	1.39E-07	1.70E-05	1.54E-03	3.07E-06	5.31E-07	MNR	MNR	MNR	1.01E-05	MNR	1.36E-03	MNR	0.00E+00	4.46E-07	9.05E-06	1.18E-07	-3.48E-04
ADP-fossil resources	MJ	1.19E+03	8.87E-01	6.32E+01	1.25E+03	1.96E+01	7.60E-01	MNR	MNR	MNR	4.76E+01	MNR	1.21E+04	MNR	0.00E+00	1.86E+00	1.26E+00	5.51E-01	-4.77E+02
Water use ⁵⁾	m ³ e depr.	2.33E+01	3.97E-03	1.21E+00	2.45E+01	6.91E-02	1.70E-02	MNR	MNR	MNR	5.91E-01	MNR	3.22E+02	MNR	0.00E+00	8.12E-03	4.40E-02	4.45E-02	-5.82E+00

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.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	6.06E-06	6.81E-09	3.22E-07	6.39E-06	7.10E-08	4.90E-09	MNR	MNR	MNR	2.14E-07	MNR	9.44E-06	MNR	0.00E+00	1.09E-08	1.60E-08	4.68E-09	-2.78E-06
Ionizing radiation ⁶⁾	kBq U235e	8.33E+00	4.23E-03	2.19E-01	8.55E+00	9.30E-02	5.43E-03	MNR	MNR	MNR	1.67E-01	MNR	3.29E+02	MNR	0.00E+00	8.62E-03	8.33E-03	2.70E-03	-2.96E+00
Ecotoxicity (freshwater)	CTUe	2.94E+03	7.98E-01	1.51E+02	3.09E+03	1.40E+01	2.25E+00	MNR	MNR	MNR	9.81E+01	MNR	6.69E+03	MNR	0.00E+00	1.71E+00	6.20E+00	2.87E+02	-9.73E+02
Human toxicity, cancer	CTUh	1.34E-07	1.96E-11	1.89E-09	1.36E-07	7.80E-10	8.35E-11	MNR	MNR	MNR	1.03E-09	MNR	1.95E-07	MNR	0.00E+00	4.80E-11	2.18E-10	1.93E-09	-1.05E-07
Human tox. non-cancer	CTUh	2.51E-06	7.90E-10	6.25E-08	2.57E-06	1.10E-08	1.94E-09	MNR	MNR	MNR	4.61E-08	MNR	6.65E-06	MNR	0.00E+00	1.59E-09	8.25E-09	1.07E-07	-1.13E-06
SQP ⁷⁾	-	2.62E+02	1.02E+00	1.06E+02	3.69E+02	6.63E+00	5.61E-01	MNR	MNR	MNR	8.09E+00	MNR	1.77E+03	MNR	0.00E+00	1.28E+00	1.97E+00	7.67E-01	-1.21E+02

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on the 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. 7) SQP = Land use related impacts/soil quality.

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	6.61E+01	1.00E-02	1.97E+01	8.58E+01	1.80E-01	3.29E-02	MNR	MNR	MNR	5.62E+00	MNR	2.13E+03	MNR	0.00E+00	2.17E-02	1.75E-01	2.31E-02	-1.73E+01
Renew. PER as material	MJ	0.00E+00	0.00E+00	1.74E+01	1.74E+01	0.00E+00	-1.74E+01	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	6.61E+01	1.00E-02	3.71E+01	1.03E+02	1.80E-01	-1.74E+01	MNR	MNR	MNR	5.62E+00	MNR	2.13E+03	MNR	0.00E+00	2.17E-02	1.75E-01	2.31E-02	-1.73E+01
Non-re. PER as energy	MJ	1.17E+03	8.87E-01	6.30E+01	1.23E+03	1.96E+01	7.59E-01	MNR	MNR	MNR	4.76E+01	MNR	1.21E+04	MNR	0.00E+00	1.86E+00	1.26E+00	5.51E-01	-4.72E+02
Non-re. PER as material	MJ	7.73E+00	0.00E+00	1.28E-01	7.85E+00	0.00E+00	-1.28E-01	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	-3.30E+00	-4.43E+00	0.00E+00
Total use of non-re. PER	MJ	1.18E+03	8.87E-01	6.32E+01	1.24E+03	1.96E+01	6.32E-01	MNR	MNR	MNR	4.76E+01	MNR	1.21E+04	MNR	0.00E+00	1.86E+00	-2.04E+00	-3.88E+00	-4.72E+02
Secondary materials	kg	3.19E-01	0.00E+00	0.00E+00	3.19E-01	0.00E+00	0.00E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renew. secondary fuels	MJ	1.81E-02	2.49E-06	7.51E-02	9.32E-02	4.29E-05	5.74E-06	MNR	MNR	MNR	6.04E-05	MNR	4.79E-03	MNR	0.00E+00	7.91E-06	6.43E-05	1.11E-05	-1.99E-03
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	5.61E-01	1.15E-04	3.00E-02	5.91E-01	1.66E-03	4.07E-04	MNR	MNR	MNR	1.55E-02	MNR	1.02E+01	MNR	0.00E+00	2.19E-04	1.45E-03	5.96E-04	-1.34E-01

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	1.56E+01	1.18E-03	5.01E-01	1.61E+01	2.58E-02	3.49E-03	MNR	MNR	MNR	4.24E-01	MNR	4.23E+01	MNR	0.00E+00	2.67E-03	9.10E-03	6.54E-02	-9.83E+00
Non-hazardous waste	kg	2.64E+02	1.93E-02	8.30E+00	2.72E+02	2.87E-01	3.11E-01	MNR	MNR	MNR	6.81E+00	MNR	2.74E+03	MNR	0.00E+00	4.27E-02	4.67E-01	1.61E+00	-1.29E+02
Radioactive waste	kg	2.76E-03	5.94E-06	8.50E-05	2.85E-03	1.37E-04	4.21E-06	MNR	MNR	MNR	5.78E-05	MNR	8.84E-02	MNR	0.00E+00	1.23E-05	4.77E-06	0.00E+00	-1.09E-03

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 reuse	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	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	1.92E-04	1.92E-04	0.00E+00	1.10E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	3.01E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	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	1.18E+00	MNR	MNR	MNR	0.00E+00	MNR	0.00E+00	MNR	0.00E+00	0.00E+00	5.85E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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 ₂ e	1.04E+02	5.85E-02	5.62E+00	1.10E+02	1.46E+00	2.60E-01	MNR	MNR	MNR	4.33E+00	MNR	5.62E+02	MNR	0.00E+00	1.27E-01	6.79E-01	6.06E-01	-4.65E+01
Ozone depletion Pot.	kg CFC ₁₁ e	3.25E-06	1.08E-08	1.63E-07	3.42E-06	2.42E-07	7.44E-09	MNR	MNR	MNR	7.68E-08	MNR	2.45E-05	MNR	0.00E+00	2.24E-08	8.39E-09	4.61E-09	-1.20E-06
Acidification	kg SO ₂ e	7.51E-01	1.94E-04	2.34E-02	7.74E-01	2.74E-02	2.39E-04	MNR	MNR	MNR	1.88E-02	MNR	2.60E+00	MNR	0.00E+00	4.14E-04	8.90E-04	2.19E-04	-3.85E-01
Eutrophication	kg PO ₄ ³ e	2.50E-01	4.43E-05	1.03E-02	2.60E-01	3.20E-03	5.03E-04	MNR	MNR	MNR	6.12E-03	MNR	2.10E+00	MNR	0.00E+00	9.49E-05	3.96E-04	8.30E-04	-1.12E-01
POCP (“smog”)	kg C ₂ H ₄ e	3.93E-02	7.59E-06	1.02E-03	4.03E-02	7.28E-04	5.58E-05	MNR	MNR	MNR	7.17E-04	MNR	1.06E-01	MNR	0.00E+00	1.68E-05	3.41E-05	1.45E-05	-1.93E-02
ADP-elements	kg Sbe	1.51E-03	1.34E-07	1.58E-05	1.53E-03	3.01E-06	5.22E-07	MNR	MNR	MNR	1.01E-05	MNR	1.35E-03	MNR	0.00E+00	4.35E-07	9.03E-06	1.06E-07	-3.44E-04
ADP-fossil	MJ	1.18E+03	8.87E-01	6.31E+01	1.25E+03	1.96E+01	7.59E-01	MNR	MNR	MNR	4.76E+01	MNR	1.21E+04	MNR	0.00E+00	1.86E+00	1.26E+00	5.50E-01	-4.77E+02

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier and has been generated using an end-to-end verified tool.

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. EPD Hub confirms that it possesses sufficient knowledge and experience in construction products and the relevant standards to carry the verification.



Nemanja Nedic
Program Manager, EPD Hub



EPD Hub has performed a detailed examination of the end-to-end verified tool and underlying data to ensure that there are no deviations in the studied Environmental Product Declaration (EPD), its Life Cycle Assessment (LCA), and project report. The tool is implemented according to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules version 1.1 and General Program Instructions version 1.2.

Tool verifier: Hai Ha Nguyen & Nemanja Nedic
Tool verification validity: 11 July 2024 - 11 July 2027

EPD Hub has examined the company-specific data for plausibility and consistency. The declaration owner is responsible for ensuring its factual integrity and legal compliance.