



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

SAS 330i Integrated Luminaire
SAS International



EPD HUB, HUB-4113

Published on 21.10.2025, last updated on 21.10.2025, valid until 20.10.2030

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.



Created with One Click LCA



GENERAL INFORMATION

MANUFACTURER

Manufacturer	SAS International
Address	EMAC House, Unit 28 Suttons Business Park, Sutton Park Avenue, Earley, Reading, UK RG6 1AZ
Contact details	enquiries@sasintgroup.com
Website	https://sasintgroup.com/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2 & ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A5, B6, and modules C1-C4, D
EPD author	Matthew Branigan, SAS International
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Yazan Badour, as an authorised verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer 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	SAS 330i Integrated Luminaire
Additional labels	-
Product reference	SAS330i
Place(s) of raw material origin	UK and Europe
Place of production	SAS Bridgend UK
Place(s) of installation and use	UK
Period for data	January 2024 to January 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	Not applicable
A1-A3 Specific data (%)	67.7

ENVIRONMENTAL DATA SUMMARY

Declared unit	1.5Lm of SAS 330i Integrated Luminaire
Declared unit mass	4.75 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	30.1
GWP-total, A1-A3 (kgCO ₂ e)	28.3
Secondary material, inputs (%)	36.6
Secondary material, outputs (%)	73.1
Total energy use, A1-A3 (kWh)	139
Net freshwater use, A1-A3 (m ³)	0.83

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

SAS International is a leading British manufacturer of quality metal ceilings and bespoke architectural metalwork. Installed in iconic, landmark buildings worldwide, SAS leads through innovation, cutting-edge design and technical acoustic expertise. Success is built on continued investment in manufacturing and achieving value for clients through world-class engineered solutions. Among many other aspects of commercial ceilings and interiors, SAS produces suspended ceilings for a vast range of spaces across the world. Our acoustic suspended ceilings provide effective solutions for commercial buildings with high quality materials and class leading design.

PRODUCT DESCRIPTION

SAS330i is a high-performance, integrated ceiling and lighting solution designed for modern commercial interiors. Developed as an evolution of the SAS330 ceiling system, it replaces the traditional C-Profile with a dedicated integrated service profile, enabling continuous, wall-to-wall illumination and a clean, monolithic aesthetic. Available in both linear and tartan grid configurations, SAS330i supports flexible spatial layouts and is ideal for high-spec commercial environments.

SAS330i is designed to meet the lighting, acoustic, and service integration needs of modern office spaces. Its micro-prismatic optics deliver uniform, low-glare illumination ($UGR < 19$), while modular ceiling and lighting components simplify installation and maintenance.

Technical Specifications

Feature	Specification
SAS330i Luminaire Sizes	Manufactured in 50 mm increments up to 3000 mm
Light Module Sizes	Standard: 1500 mm & 3000 mm. Custom terminators: 500–3000 mm (50 mm increments)
Optic Type	100 mm wide micro-prismatic with source obscuration
UGR & Luminance	$UGR < 19$; luminance $\leq 3000 \text{ cd/m}^2$ at 65°
Light Output	1533 lm/m
Power Consumption	13.3 W/m
Colour Temperature (CCT)	4000 K
CRI (Ra)	≥ 80
LED Lifetime	60,000 hours to L90
Control Gear Lifetime	100,000 hours ($\leq 10\%$ failure rate)
Emergency Option	Integral 3-hour DALI addressable emergency version available
Control System	DALI addressable with modular wiring system
Luminaire Body	White powder-coated extruded aluminium

Further information can be found at:
<https://sasintgroup.com/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	77	EU
Minerals	-	-
Fossil materials	23	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.0651
Biogenic carbon content in packaging, kg C	0.523

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1.5Lm of SAS 330i Integrated Luminaire (4.75Kg)
Mass per declared unit	4.75 kg
Functional unit	1.5Lm of SAS 330i Integrated Luminaire (4.75Kg)
Reference service life	25

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.

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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	x	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. Not relevant = NR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The environmental impacts considered for the product stage cover the manufacturing of materials used in production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. The product is composed of metal (aluminum and steel), plastic, and electrical components. These materials are transported to SAS's production facility in Bridgend, UK, where the main manufacturing processes take place, including cutting, routing, and painting of extruded aluminum. Afterward, the components are assembled to form the finished product. The completed product is then packed in cardboard and placed into wooden crates before being transported to the installation site.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

No transportation impacts have been included in the A4 stage. This means that emissions and environmental effects related to the transport of the product from the factory to the installation site, or between any other logistical points within this phase, are not accounted for in this assessment.

The A5 installation stage includes the management of waste generated during the installation process, specifically the disposal and handling of packaging

materials such as cardboard and wooden crates. These waste materials are accounted for in the assessment to capture their environmental impact within the installation phase. Packaging waste treatment rates are based on EUROSTAT data.

PRODUCT USE AND MAINTENANCE (B1-B7)

SAS 330i Integrated Luminaire is designed for sale and use in UK markets. Module B4 includes replacement of certain components occurring in set intervals to ensure functionality of the product over its lifetime of 25 years (B4). The sensor controls occupancy and proximity detection, thereby reducing energy consumption. Manufacturing energy and packaging materials for production of replacement components are also included. During the use phase, the product consumes electricity from UK electricity grid mix (B6). The total power consumption of the reference product is calculated as follows: $\text{Wattage} \times \text{Reference lifetime} = \text{kWh consumed throughout the entire use phase (B6)}$, as required by the PCR. Impacts due to electricity production include direct emissions to air, transformation and transmission losses. The non-functional parts that are replaced are disposed of and sent to waste treatment in the same module. Air, soil, and water impacts during the use phase have not been studied.

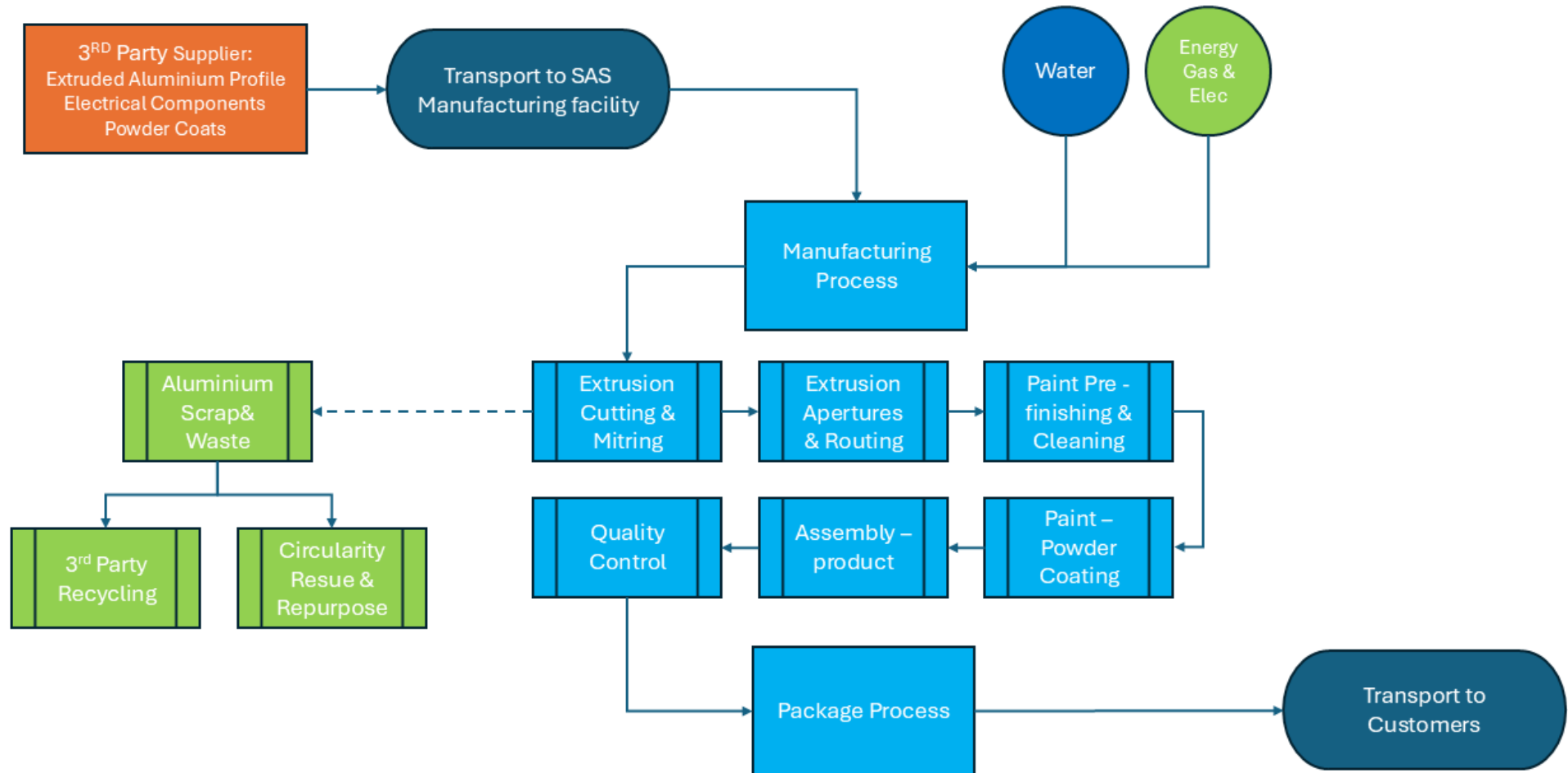
PRODUCT END OF LIFE (C1-C4, D)

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 centres. Transportation distance to treatment is assumed as 50 km and 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.

MANUFACTURING PROCESS

SAS International - SAS 330i Integrated Luminaire Manufacturing Process



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	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 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.

RESULTS ARE FOR DECLARED UNIT OF 1.5LM OF SAS 330I INTEGRATED LUMINAIRE (4.75KG)

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 ₂ e	2.81E+01	8.75E-01	-6.76E-01	2.83E+01	ND	1.95E+00	ND	ND	ND	ND	ND	2.41E+02	ND	0.00E+00	1.33E-01	7.84E-01	3.64E-01	-2.53E+01
GWP – fossil	kg CO ₂ e	2.80E+01	8.74E-01	1.25E+00	3.01E+01	ND	2.11E-02	ND	ND	ND	ND	ND	2.40E+02	ND	0.00E+00	1.32E-01	7.84E-01	3.65E-01	-2.47E+01
GWP – biogenic	kg CO ₂ e	4.13E-02	2.27E-04	-1.92E+00	-1.88E+00	ND	1.92E+00	ND	ND	ND	ND	ND	5.39E-01	ND	0.00E+00	2.95E-05	-3.22E-04	-5.65E-05	-7.69E-02
GWP – LULUC	kg CO ₂ e	7.97E-02	3.56E-04	1.68E-03	8.17E-02	ND	3.13E-05	ND	ND	ND	ND	ND	7.37E-01	ND	0.00E+00	5.90E-05	1.16E-04	1.57E-05	-4.53E-01
Ozone depletion pot.	kg CFC ₋₁₁ e	8.38E-07	1.75E-08	2.40E-08	8.79E-07	ND	3.44E-10	ND	ND	ND	ND	ND	4.43E-06	ND	0.00E+00	1.91E-09	1.27E-09	3.79E-10	-1.86E-07
Acidification potential	mol H ⁺ e	2.60E-01	3.06E-03	2.30E-03	2.65E-01	ND	1.16E-04	ND	ND	ND	ND	ND	1.41E+00	ND	0.00E+00	4.47E-04	1.17E-03	1.51E-04	-2.22E-01
EP-freshwater ²⁾	kg Pe	1.29E-02	6.98E-05	5.34E-04	1.35E-02	ND	5.60E-06	ND	ND	ND	ND	ND	2.24E-01	ND	0.00E+00	1.03E-05	5.32E-05	2.64E-06	-3.69E-02
EP-marine	kg Ne	2.77E-02	1.03E-03	9.15E-04	2.97E-02	ND	1.27E-04	ND	ND	ND	ND	ND	2.22E-01	ND	0.00E+00	1.46E-04	3.14E-04	5.67E-04	-3.57E-02
EP-terrestrial	mol Ne	3.09E-01	1.13E-02	8.20E-03	3.29E-01	ND	4.70E-04	ND	ND	ND	ND	ND	1.99E+00	ND	0.00E+00	1.59E-03	3.29E-03	6.63E-04	-4.21E-01
POCP (“smog”) ³⁾	kg NMVOce	9.94E-02	4.84E-03	2.44E-03	1.07E-01	ND	1.55E-04	ND	ND	ND	ND	ND	6.54E-01	ND	0.00E+00	6.42E-04	9.36E-04	1.94E-04	-1.23E-01
ADP-minerals & metals ⁴⁾	kg Sbe	1.38E-03	3.44E-06	5.64E-06	1.39E-03	ND	5.97E-08	ND	ND	ND	ND	ND	3.24E-03	ND	0.00E+00	4.00E-07	5.61E-06	5.26E-08	-5.91E-04
ADP-fossil resources	MJ	3.62E+02	1.26E+01	7.09E+00	3.82E+02	ND	2.98E-01	ND	ND	ND	ND	ND	5.59E+03	ND	0.00E+00	1.89E+00	1.25E+00	2.94E-01	-2.39E+02
Water use ⁵⁾	m ³ e depr.	9.85E+00	6.84E-02	2.05E-01	1.01E+01	ND	8.00E-03	ND	ND	ND	ND	ND	1.52E+02	ND	0.00E+00	9.08E-03	6.31E-02	2.54E-02	-1.80E+01

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, 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
Particulate matter	Incidence	7.09E-07	8.61E-08	5.82E-08	8.53E-07	ND	2.05E-09	ND	ND	ND	ND	ND	5.04E-06	ND	0.00E+00	1.20E-08	1.49E-08	1.90E-09	-2.82E-06
Ionizing radiation ⁶⁾	kBq 11235e	8.73E-01	1.91E-02	9.27E-02	9.85E-01	ND	7.96E-04	ND	ND	ND	ND	ND	1.54E+02	ND	0.00E+00	1.59E-03	4.24E-03	4.79E-04	-1.93E+00
Ecotoxicity (freshwater)	CTUe	2.87E+02	1.55E+00	3.59E+00	2.92E+02	ND	1.20E-01	ND	ND	ND	ND	ND	8.52E+02	ND	0.00E+00	2.82E-01	2.00E+00	5.26E+01	-4.10E+02
Human toxicity, cancer	CTUh	2.11E-08	3.32E-10	6.29E-10	2.20E-08	ND	1.05E-11	ND	ND	ND	ND	ND	8.12E-08	ND	0.00E+00	2.22E-11	1.34E-10	3.69E-11	-2.67E-08
Human tox. non-cancer	CTUh	1.24E-06	8.09E-09	4.23E-09	1.25E-06	ND	5.74E-10	ND	ND	ND	ND	ND	4.21E-06	ND	0.00E+00	1.21E-09	6.89E-09	2.71E-09	-2.39E-07
SQP ⁷⁾	-	6.40E+01	1.08E+01	2.13E+00	7.69E+01	ND	2.77E-01	ND	ND	ND	ND	ND	1.24E+03	ND	0.00E+00	1.55E+00	2.15E+00	4.35E-01	-6.65E+01

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 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	1.30E+02	2.47E-01	6.44E+00	1.36E+02	ND	-9.16E+00	ND	ND	ND	ND	ND	1.53E+03	ND	0.00E+00	2.59E-02	1.78E-01	7.99E-03	-1.66E+02
Renew. PER as material	MJ	0.00E+00	0.00E+00	1.72E+01	1.72E+01	ND	-1.72E+01	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	1.30E+02	2.47E-01	2.36E+01	1.53E+02	ND	-2.63E+01	ND	ND	ND	ND	ND	1.53E+03	ND	0.00E+00	2.59E-02	1.78E-01	7.99E-03	-1.66E+02
Non-re. PER as energy	MJ	3.55E+02	1.26E+01	-4.64E+00	3.63E+02	ND	2.98E-01	ND	ND	ND	ND	ND	5.59E+03	ND	0.00E+00	1.89E+00	-9.30E+00	-1.34E+01	-2.39E+02
Non-re. PER as material	MJ	1.15E+01	0.00E+00	8.38E-04	1.15E+01	ND	-8.38E-04	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	-5.73E+00	-5.73E+00	0.00E+00
Total use of non-re. PER	MJ	3.66E+02	1.26E+01	-4.64E+00	3.74E+02	ND	2.97E-01	ND	ND	ND	ND	ND	5.59E+03	ND	0.00E+00	1.89E+00	-1.50E+01	-1.92E+01	-2.39E+02
Secondary materials	kg	1.74E+00	5.80E-03	2.14E-02	1.77E+00	ND	2.04E-04	ND	ND	ND	ND	ND	9.25E-01	ND	0.00E+00	8.26E-04	1.41E-03	1.41E-04	3.61E+00
Renew. secondary fuels	MJ	3.68E-03	6.71E-05	1.87E-03	5.61E-03	ND	2.02E-06	ND	ND	ND	ND	ND	7.38E-03	ND	0.00E+00	1.05E-05	6.26E-05	3.26E-06	-2.07E-03
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	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	8.20E-01	1.93E-03	5.44E-03	8.28E-01	ND	-7.72E-04	ND	ND	ND	ND	ND	4.83E+00	ND	0.00E+00	2.66E-04	1.27E-03	-1.56E-03	-3.97E-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	2.08E+00	1.98E-02	3.36E-01	2.44E+00	ND	1.95E-03	ND	ND	ND	ND	ND	1.41E+01	ND	0.00E+00	3.25E-03	2.06E-02	6.83E-03	-7.56E+00
Non-hazardous waste	kg	5.56E+01	4.21E-01	3.88E+00	5.99E+01	ND	1.36E+00	ND	ND	ND	ND	ND	1.09E+03	ND	0.00E+00	6.05E-02	5.65E-01	2.92E+00	-3.20E+01
Radioactive waste	kg	7.13E-03	4.78E-06	2.52E-05	7.16E-03	ND	1.99E-07	ND	ND	ND	ND	ND	3.97E-02	ND	0.00E+00	3.90E-07	1.05E-06	1.18E-07	-4.23E-04

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	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	2.88E+00	6.58E-02	2.00E-02	2.96E+00	ND	2.07E-01	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	3.47E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	8.98E-03	0.00E+00	0.00E+00	8.98E-03	ND	0.00E+00	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	2.40E-01	0.00E+00	0.00E+00	2.40E-01	ND	9.58E-01	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	3.36E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	4.03E-01	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	1.41E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	5.55E-01	ND	ND	ND	ND	ND	0.00E+00	ND	0.00E+00	0.00E+00	1.95E+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	2.67E+01	8.69E-01	1.24E+00	2.88E+01	ND	3.63E-02	ND	ND	ND	ND	ND	2.40E+02	ND	0.00E+00	1.32E-01	7.84E-01	3.63E-01	-2.49E+01
Ozone depletion Pot.	kg CFC ₁₁ e	6.75E-07	1.39E-08	1.97E-08	7.08E-07	ND	2.77E-10	ND	ND	ND	ND	ND	3.70E-06	ND	0.00E+00	1.52E-09	1.07E-09	3.15E-10	-1.61E-07
Acidification	kg SO ₂ e	2.16E-01	2.32E-03	1.70E-03	2.20E-01	ND	8.63E-05	ND	ND	ND	ND	ND	1.20E+00	ND	0.00E+00	3.42E-04	9.23E-04	1.10E-04	-1.83E-01
Eutrophication	kg PO ₄ ³ e	3.84E-02	5.88E-04	5.88E-04	3.96E-02	ND	3.38E-05	ND	ND	ND	ND	ND	1.56E-01	ND	0.00E+00	8.32E-05	1.55E-04	6.88E-05	-2.10E-02
POCP (“smog”)	kg C ₂ H ₄ e	1.26E-02	2.45E-04	1.25E-04	1.30E-02	ND	1.03E-05	ND	ND	ND	ND	ND	6.56E-02	ND	0.00E+00	3.05E-05	5.54E-05	1.11E-05	-1.57E-02
ADP-elements	kg Sbe	1.37E-03	3.38E-06	5.50E-06	1.38E-03	ND	5.74E-08	ND	ND	ND	ND	ND	3.23E-03	ND	0.00E+00	3.90E-07	5.58E-06	4.44E-08	-5.84E-04
ADP-fossil	MJ	3.07E+02	1.22E+01	6.02E+00	3.25E+02	ND	2.85E-01	ND	ND	ND	ND	ND	2.87E+03	ND	0.00E+00	1.87E+00	1.18E+00	2.86E-01	-2.11E+02

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	2.81E+01	8.74E-01	1.25E+00	3.02E+01	ND	2.12E-02	ND	ND	ND	ND	ND	2.41E+02	ND	0.00E+00	1.32E-01	7.85E-01	3.65E-01	-2.52E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, medium voltage, residual mix (Reference product: electricity, medium voltage)
Electricity CO2e / kWh	0.44
District heating data source and quality	Heat production, natural gas, at industrial furnace >100kW (Reference product: heat, district or industrial, natural gas)
District heating CO2e / kWh	0.077

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	-
Water use / m ³	-
Other resource use / kg	-
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	-
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	Cardboard: 0.002 kg Wood pallet: 0.0075 kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	% are for recycling, incineration w. energy recovery, landfill respectively. Cardboard: 82%, 9%, 9% Wood pallet: 30%, 30%, 40%
Direct emissions to ambient air, soil and water / kg	-

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	-
Net fresh water consumption / m ³	-
Type of energy carrier, e.g., electricity, natural gas, district heating / kWh	Network electricity & natural gas
Power output of equipment / kW	0.01333 kW.
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	-
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	0
Collection process – kg collected with mixed waste	5.1
Recovery process – kg for re-use	0
Recovery process – kg for recycling	3.77
Recovery process – kg for energy recovery	1.33
Disposal (total) – kg for final deposition	0.62
Scenario assumptions e.g. transportation	Transported 250 km (recycling) and 50 km (landfill) by lorry

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 15802+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 authorised verifier acting for EPD Hub Limited

21.10.2025

