

# Environmental Product Declaration



In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

## Planar LED Downlight

TK NO.	Product Reference
10247748	2325 G3 C05 S OA LED 20/14/08/ML-840 ET
10247749	2325 G3 C07 S OA LED 20/14/08/ML-840 ET

from

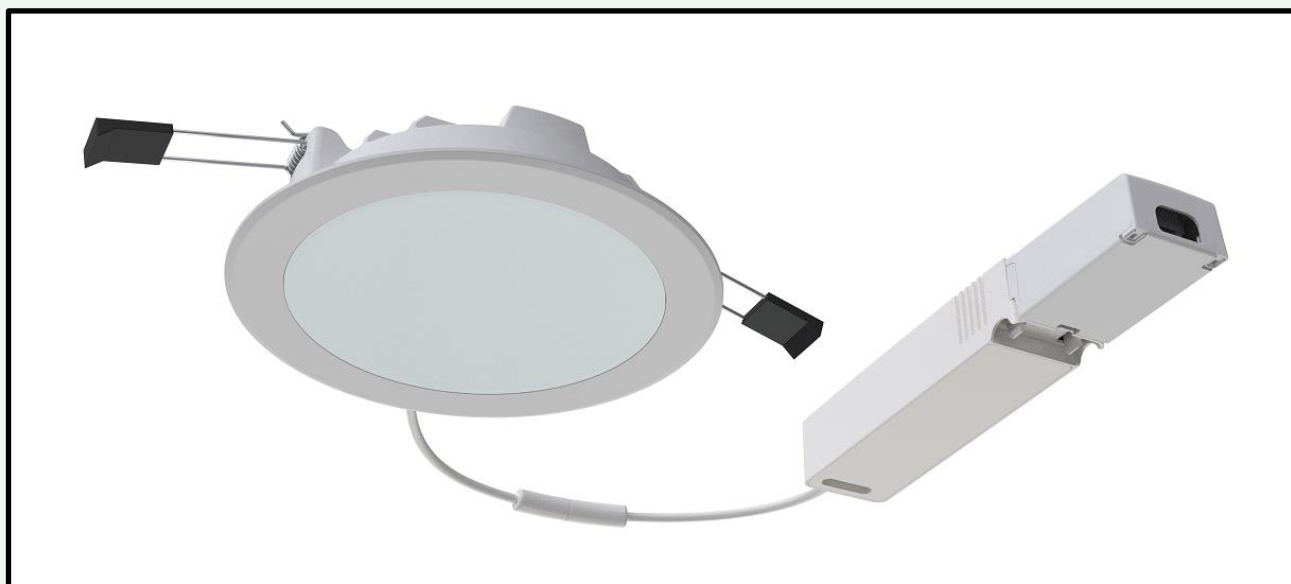
**TRILUX GmbH & Co. KG**



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EPD registration number:	S-P-07792
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*EPD covers multiple products*

*An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)*



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## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
EN 15804:2012+A2:2019/AC:2021: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
Product Category Rules (PCR): <i>PCR 2019:14 Construction products (EN 15804:A2) (1.2.5)</i>
PCR review was conducted by: El Comité Técnico del Sistema Internacional EPD®. Presidente: Claudia A. Peña. Contact via <a href="mailto:info@environdec.com">info@environdec.com</a>
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: <i>Mark Iv, SGS China Co., Ltd</i>
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:  <input checked="" type="checkbox"/> EPD verification by accredited certification body  Third-party verifier:  SGS Italia S.p.A. via Caldera, 21, 20153 – Milano T +39 02 73 931 - <a href="http://www.it.sgs.com">www.it.sgs.com</a>  Accreditation certification n 006H  Accredited by: ACCREDIA  Approved by: The International EPD® System  SGS China Co., Ltd, company established under Chinese law, and SGS Italia SpA, company established under Italian law are independent companies belonging to the multinational SGS Group of Companies, among them there is no direct or indirect organizational or financial control, interest or connection, of any type.
Procedure for follow-up of data during EPD validity involves third party verifier:  <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the

same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

## Company information

Owner of the EPD: TRILUX GmbH & Co. KG

Contact: Katrin Discher

<https://www.trilux.com/>

<https://www.trilux-twenty3.com>

Description of the organisation: The TRILUX Group is an expert when it comes to intelligent, networked and sustainable lighting solutions.



SIMPLIFY YOUR LIGHT is the brand message since the path for TRILUX customers to a customised and future-proof lighting system is simple and secure. TRILUX solutions are always perfectly matched to customer requirements and the area of application.

To safeguard this standard, TRILUX offers a wide portfolio of technologies and services as well as comprehensive know-how. The companies of the TRILUX Group and its partners form a high-performance network. This way, complex and extensive projects can be simply and rapidly implemented from a single supplier. In the lighting market, which is dynamic and increasingly complex in terms of technology, customers are provided with optimal advice and perfect light. TRILUX has proven to be a reliable and expert partner in all project phases.

Committed to the values of a medium-sized, independent family business in accordance with European standards, TRILUX today is organized in an international, competitive holding structure. The light business division consists of the brands TRILUX SIMPLIFY YOUR LIGHT, Oktalite and Zalux. Associated companies are, amongst others, ICT and the online platform watt24. As a department for research and development, the innovation Centre bundles the innovative power under the roof of TRILUX. The TRILUX Akademie has locations in Germany, Austria, the Netherlands, Belgium, Great Britain, France and Switzerland communicating expertise concerning topics, trends and new developments in the lighting sector. The TRILUX Group has six production facilities in Europe and Asia and supports international customers via 30 subsidiaries and a large number of sales partners.

TRILUX products are used in all areas of professional application. They ensure safety in production, logistics and commerce, bring ergonomic light into offices, create ideal conditions for health, education and sports and present goods in sales spaces or exhibits in museums and exhibitions in the best light. Luminaires from TRILUX illuminate streets, paths and squares, can be found all around buildings and

showcase architecture. TRILUX is at the forefront in terms of sustainability. Corporate responsibility, climate protection and compliance with social and environmental standards is not only a matter of course for TRILUX, but also a top priority to management. Therefore, the topic of sustainability at TRILUX is also a responsibility of top management and is centrally controlled by Group management. The highest controlling body is the Supervisory Board with Chairman Michael Huber. Responsibility for the sustainability goals and measures lies with Group management.

Product-related or management system-related certifications:

- TRILUX's products must comply with all legal regulations required in the European Regulations (EC), p. eg EN 62471 Photobiological safety.
- Fujian ManewAlot Lighting Co., Ltd. hold ISO 9001- and BSCI- certificates.

Name and location of production site(s): Address Area B, Workshop Building 6#, Longhai Jinxiushan Industrial Park, No.58, Jiaosong Road, Jiaomei Town, Taiwanese Investment Zone, Zhangzhou, Fujian, P.R.China

## Product information

Product name: Planar LED Downlight 2325 G3 C05 S OA LED 20/14/08/ML-840 ET and Planar LED Downlight 2325 G3 C07 S OA LED 20/14/08/ML-840 ET

Product identification: Recessed luminaires

UN CPC code: 4653 Lighting equipment

Product description: The 2325 LED downlight is the perfect solution for ceilings with a shallow recess depth, and also fits into any suspended ceiling, and is suitable for insulation material directly on luminaire. The luminaire complies with fundamental requirements of applicable EU regulations and product safety legislation and bears the CE symbol. The luminaire is also ENEC-certified by an independent testing authority.

- Flexible setting of luminaire luminous flux (2,000lm, 1,400lm, 800lm) thanks to multi-lumen technology
- Tool-free ceiling installation due to rapid-mounting catches.
- Low recess depth (46.7mm incl. control gear unit).
- Pleasant light effect due to uniform illumination.
- 1:1 replacement of conventional luminaires offering time and cost savings during refurbishment.
- High efficiency (up to 120lm/W) and reliable service life (50,000 h, L70).
- Ideal for reception areas, hotels, restaurants, sales spaces, exhibition spaces, meeting and relaxation rooms as well as corridors.

Table 1: Planar LED Downlight 2325 G3 C05 S OA LED 20/14/08/ML-840 ET

TK NO.	10247748
Product Reference	2325 G3 C05 S OA LED 20/14/08/ML-840 ET
Luminous flux(lm)	2000/1400/800
Efficiency(lm/w)	120/120/115
Power(W)	16.5/11.5/7.5
Lifetime(h)	50000
Protection Class	IP44(on room side)/IP20/IK02

Dimension(mm*mm)	D170xH46.7
Cut out	140-150mm

Table 2: Planar LED Downlight 2325 G3 C07 S OA LED 20/14/08/ML-840 ET

TK NO.	10247749
Product Reference	2325 G3 C07 S OA LED 20/14/08/ML-840 ET
Luminous flux(lm)	2000/1400/800
Efficiency(lm/w)	120/120/115
Power(W)	16.5/11.5/7.5
Lifetime(h)	50000
Protection Class	IP44(on room side)/IP20/IK02
Dimension(mm*mm)	D230xH46.7
Cut out	200-210mm

**The difference in environment impact of different indicators are less than 10%, and according to the sales proportion (60%C05, 40%C07) of two products, the average environment impact can be calculated based on weighted mean.**

## LCA information

Declared unit: According to PCR 2019:14, EPDs based without using a complementary PCR (c-PCR) shall use a declared unit. The declared unit is defined as One Downlight.

Reference service life: It is considered to be 50000h, based on the quality guarantee offered to clients.

Temporal and geographical representativeness: Based on reducing the impact of seasonal variation, yield fluctuation on LCA, the reporting period is selected as from October 2021 to September 2022. The period is representative of the reference year selected for presented the EPD results. The primary data refers to similar products in the period from October 2021 to December 2021.

Data quality: In order to meet the data quality requirements, the following aspects are mainly considered in this study:

- Time-related coverage
- Geography coverage.
- Technology coverage

This study has made extensive use of UN Environment Global Guidance on LCA database development to assess the quality and uncertainty of relevant data.

Database(s) and LCA software used: SimaPro® software v.9.3 developed by PRé Consultants was used to create the product system model. The Ecoinvent® database version 3.8 provided the life cycle background data for product system modelling.

Description of system boundaries: Cradle to gate with options, modules C1 – C4, module D and with optional modules (A4-A5+B1 – B7), system boundaries in this case are actually cradle to grave.

System diagram:

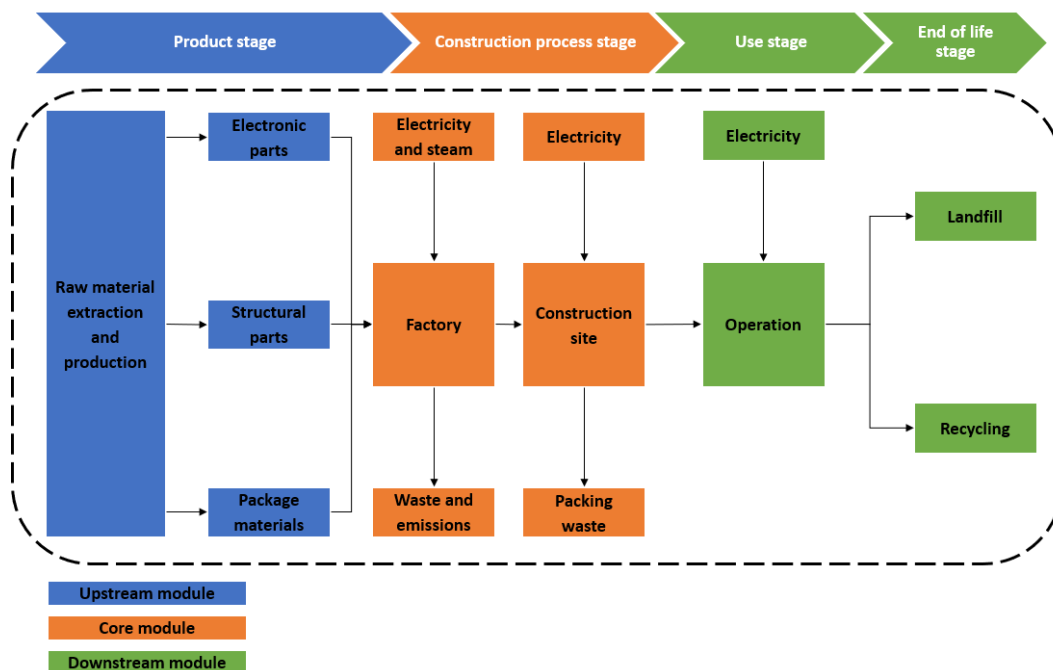


Figure 1: System boundary

The type of EPD is type b), Cradle to gate with options, modules C1 – C4, module D and with optional modules (A4-A5+B1 – B7), system boundaries in this case are actually cradle to grave.

The life cycle stages analyzed are described below:

### A1-A3 Product stage

A1 Raw material supply (Product stage):

In this process, the materials and components are manufactured by supplies, and the Downlight product can be divided into 3 parts: Electronic parts, Structural parts and package materials. Because production plant has no financial control or operational control over the supplies manufacturing materials above, Upstream production data for materials (eg. Resistor, Capacitor, Printed Circuit Board, plastic parts) refer to Ecoinvent database. The proxy data of PBT is PEP, which environment impact of all indicators is less than 10%.

A2 Transport (Product stage):

The mode of transportation of materials is by lorry. However, It's hard for factories to keep track of the load of lorry. In this case, report assumed that the lorry (EURO 4, 7.5-16 t) are in use.

A3 Manufacturing (Product stage):

Fujian ManewAlot Lighting Co., Ltd. (hereinafter referred to as Manew) is responsible for the PCBA Printed Circuit Board Assembly, whole lamp assembly, testing product performance. In this process, most of the environmental load comes from electricity consumption. Solid waste (eg. Waste plastics, wastebasket, Aluminium scrap) in production process are entrusted a third party to recycle, and trucked by EURO 4,5t lorry. Since the price of material recycling is very low, the environmental credit are not considered. In addition, there is no emissions to air or water in the production.

### A4-A5 Product stage

#### A4 Transport (Construction process stage)

The A4 Transport module includes the transportation of finished and packaged products from the factory gate to the construction site for their subsequent installation. The products are transported by truck to the port, then by ship to European ports, and from European ports by truck to TRILUX. The transportation distance from TRILUX to customers is assumed to be 2340 km, which is the maximum distance.

A weighted average of the mileage associated with Downlight products has been considered based on its sales during the year 2022.

Table 3: Transport to the building site

PARAMETER	DESCRIPTION
Type and fuel consumption of the vehicle, type of vehicles used for the transport; for example, trucks for long distance, boat, etc.	Factory to port: lorry 16-32 metric ton, EURO4 low-sulfur diesel;
	Port to port: ferry, sea, Heavy fuel oil
	Port to TRILUX: lorry 16-32 metric ton, EURO4 low-sulfur diesel
	TRILUX to consumers: lorry 16-32 metric ton, EURO4 low-sulfur diesel
Distance	Km by truck: 830 km
	Km by sea: 25000 km
Capacity utilization (including empty return trip)	assumed by Ecoinvent
Apparent density	138.51 kg/m <sup>3</sup>
Useful capacity factor	1

#### A5 Construction installation (Construction process stage)

The A5 module including manufacture and transportation of ancillary materials and any energy or water required for installation or operation of the construction site. At the same time, the transport and disposal of packaging waste is taken into account. The product does not consume any material in the process, and only testing consumes electricity. The packaging materials are recyclable and 100% package materials are recycled. The transport distance of packaging materials to the treatment plant is assumed to be 50km.

Table 5: Installation of the product in the building

Scenario information	Description	Value per declared unit
Ancillary materials for installation	kg	0
Water use	m <sup>3</sup>	0
Other resource use	Not applicable	0
Quantitative description of energy type and consumption during the installation process	Electricity, low voltage, Europe	0.83 Wh
Waste materials on the building site before waste processing,	Waste package materials	0.267Kg

generated by the product's installation.		
Output materials result of waste processing at the building Site.	Recycling	100%
Direct emissions to ambient air, soil and water	Not applicable	0

## B1-B7 Product stage

### B1 Use (Use stage)

The B1 module covers environmental aspects and impacts arising from components of the building and construction works during their normal use, not including the consumption of water and energy. The impact of the product at this stage is null.

### B2 Maintenance (Use stage)

No maintenance of any kind is required during the product's 50000h lifetime.

### B3 Repair (Use stage)

No reparation in B3 module.

### B4 Replacement (Use stage)

No substitution in B4 module.

### B5 Refurbishment (Use stage)

No rehabilitaion in B5 module.

### B6 Operational energy use (Use stage)

The B6 module shall include energy use during the operation of the product. The maximum power of the product is 16.5 W, and the lifetime is 50000 h. It can be estimated that the power consumption in the product life cycle is 825 kWh.

### B7 Operational water use (Use stage)

No water consumption in B7 module.

## C1-C4 Product stage

### C1 De-construction demolition (End of life stage)

C1 deconstruction, including dismantling or demolition, of the product from the building. In this process, the common scenario of manual dismantling for 100% of the product is considered. Refer to the Ecoinvnet database for relevant activity data.

### C2 Transport (End of life stage)

C2 transportation of the discarded product as part of the waste processing. In this process, it is assumed that the distance to the waste treatment plant is 100km.

### C3 Waste processing (End of life stage)

In this process, metal, plastics and electronic parts are assumed to be recycled based on Product WEEE report.

#### C4 Disposal (End of life stage)

The rest of the product that has not been recycled is sent to the landfill.

The following table summarizes the information necessary for the end-of-life stage:

Table 6: Inventory for End of life stage

Module	Parameter	Description		Value	Unit
C1 De-construction demolition	Collection process specified by type	Collected separately		397	g
		Collected with mixed construction waste		0	
C2 Transport	Fuel type and consumption of vehicle or vehicle type used for transport.	lorry 16-32 metric ton, EURO4 low-sulfur diesel		397	kg*km
C3 Waste processing	Recovery system specified by type	Reuse		0	g
		Recycling	96% Metal materials	15.63	g
			87% plastic parts	255.84	g
			84% electronic parts	70.74	g
		Incineration for energy recovery		0.00	g
C4 Disposal	Disposal specified by type	Landfill	4% Metal materials	0.72	g
			13% plastic parts	25.59	g
			16% electronic parts	25.57	g

#### D Reuse, recovery and recycling potential product stage

D Reuse-Recovery-Recycling-potential (Resource recovery stage)

Due to the recycling process, the end-of-life product is converted into recycled materials.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

Table 7: Declared life cycle stages

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	GLO	GLO	CN	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data used	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation products	25.85%	25.38%	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	One production plant					-	-	-	-	-	-	-	-	-	-	-	-

## Information additional

- Allocation processes: In this study, there are no co-products in the production of manufactured by Manew. Hence, there is no need for materials allocation. For the power consumption of the production equipment, the meter counts the power consumption per hour of the SMT workshop, divides it by the one-hour output of the product, and then calculates the power consumption to produce one product. The power of air conditioning and lighting is calculated by the theoretical formula: power x man-hour. According to PCR 2019:14, the allocation of waste shall follow the polluter-pays principle that is made operational.
- Cut-off rules and considerations: According to PCR 2019:14 Construction products, based on established LCA practice, the cut-off criteria are set to a maximum of 5 % of the overall environmental impact of the product system given by its life cycle impact assessment (LCIA) results. The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019/AC:2021 and the applied PCR. The study does not exclude any hazardous materials or substances. In the study, a small amount of glue and tape were ignored, accounting for 0.24% of the total input mass of raw materials. 2.144g scaling powder and 0.000005g Emissions to air from welding process has been cut off, which meets the cut-off criteria.
- At same time, flows less than 1% of the total inventory were excluded, i.e.:
  - construction of company plants and processing machinery (with a life of more than three years);
  - staff travel and home-work transfers;
  - research and development activities;
  - the materials necessary for cleaning the machinery;
- Calculation methodologies: In this study, EN 15804 + A2 method is selected as Impact assessment method. The EN 15804 standard covers Environmental Product Declarations (EPDs) of Construction Products. In addition, a supplementary indicator for climate impact has be added: GWP-GHG. This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. Temporary and permanent carbon storage is not allowed therefore the 15804 standard provides a set of requirement to prevent its accounting.

## Content information

The composition range of the Downlight product is shown below:

Table 8: Content information

Product components	Weight, kg
Electronic parts	0.08745
Meatl	0.016345
PA	0.15855
PBT	0.0588
PC	0.065372

Other plastics	0.0106704
<b>Packaging materials</b>	<b>Weight, kg</b>
Wooden pallets	0.07
Manuals	0.0145
Corrugated cardboard	0.181022
TOTAL	0.265522

## Environmental Information

Table 9: Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	5.10E+00	4.62E-01	2.62E-03	0	0	0	0	0	3.38E+02	0	1.25E-01	6.85E-03	1.09E-01	4.97E-02	-2.22E-01
GWP-fossil	kg CO <sub>2</sub> eq.	5.26E+00	4.62E-01	2.61E-03	0	0	0	0	0	3.27E+02	0	1.25E-01	6.84E-03	1.08E-01	3.11E-03	-5.88E-01
GWP-biogenic	kg CO <sub>2</sub> eq.	-4.50E-01	1.49E-04	2.80E-06	0	0	0	0	0	1.96E+00	0	7.02E-05	2.46E-06	2.93E-04	5.26E-01	3.67E-01
GWP-luluc	kg CO <sub>2</sub> eq.	6.38E-03	2.41E-04	1.72E-06	0	0	0	0	0	7.73E-01	0	4.36E-05	2.84E-06	1.98E-04	1.23E-06	-5.98E-04
ODP	kg CFC 11 eq.	9.10E-07	9.73E-08	5.13E-10	0	0	0	0	0	1.65E-05	0	1.12E-09	1.48E-09	3.57E-09	1.80E-10	-7.30E-07
AP	mol H <sup>+</sup> eq.	3.76E-02	6.64E-03	1.35E-05	0	0	0	0	0	1.86E+00	0	1.41E-04	3.47E-05	5.33E-04	9.19E-06	-2.81E-03
EP-freshwater	kg P eq.	2.71E-03	2.81E-05	5.03E-07	0	0	0	0	0	3.29E-01	0	1.06E-05	5.14E-07	5.07E-05	8.26E-07	-1.10E-04
EP-marine	kg N eq.	5.95E-03	1.78E-03	4.24E-06	0	0	0	0	0	3.10E-01	0	3.92E-05	1.17E-05	1.02E-04	9.28E-05	-6.06E-04
EP-terrestrial	mol N eq.	6.10E-02	1.96E-02	4.56E-05	0	0	0	0	0	2.73E+00	0	3.72E-04	1.29E-04	1.02E-03	2.51E-05	-6.41E-03
POCP	kg NMVOC eq.	1.94E-02	5.24E-03	1.30E-05	0	0	0	0	0	7.51E-01	0	9.44E-05	3.66E-05	2.75E-04	1.82E-05	-2.51E-03
ADP-minerals&metals	kg Sb eq.	6.44E-04	1.26E-06	1.09E-08	0	0	0	0	0	3.03E-03	0	3.00E-07	2.35E-08	1.40E-07	3.63E-09	-2.10E-05
ADP-fossil*	MJ	6.56E+01	6.54E+00	4.09E-02	0	0	0	0	0	6.93E+03	0	2.83E-01	1.01E-01	1.41E+00	1.75E-02	1.90E+01
WDP*	m <sup>3</sup>	1.75E+00	1.91E-02	1.99E-04	0	0	0	0	0	8.11E+01	0	5.17E-03	3.51E-04	1.72E-02	6.18E-04	-6.24E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Table 10 : Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	5.30E+00	4.62E-01	2.61E-03	0	0	0	0	0	3.30E+02	0	1.25E-01	6.84E-03	1.08E-01	4.24E-02	-5.90E-01

Table 11: Use of resources

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	3.89E+00	6.58E-02	1.79E-03	0	0	0	0	0	1.39E+03	0	3.18E-02	1.17E-03	1.62E-01	7.92E-04	-6.52E+00
PERM	MJ	4.22E+00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	MJ	8.12E+00	6.58E-02	1.79E-03	0	0	0	0	0	1.39E+03	0	3.18E-02	1.17E-03	1.62E-01	7.92E-04	-6.52E+00
PENRE	MJ	5.77E+01	6.94E+00	4.33E-02	0	0	0	0	0	7.27E+03	0	3.01E-01	1.08E-01	1.50E+00	1.86E-02	-2.04E+01
PENRM	MJ	1.27E+01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	MJ	7.04E+01	6.94E+00	4.33E-02	0	0	0	0	0	7.27E+03	0	3.01E-01	1.08E-01	1.50E+00	1.86E-02	-2.04E+01
SM	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	1.73E+00	1.93E-02	1.99E-04	0	0	0	0	0	7.97E+01	0	5.05E-03	3.54E-04	1.65E-02	6.15E-04	-6.09E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

<sup>1</sup> This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

## Waste production and output flows

Table 12: Waste production

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-hazardous waste disposed	kg	0.023	0	0.265	0	0	0	0	0	0	0	0	0	0.342	0.052	0
Radioactive waste disposed	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 13: Output flows

Results per functional or declared unit																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0.019	0	0.2652	0	0	0	0	0	0	0	0	0	0.342	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 14: Information on biogenic carbon content

Results per functional or declared unit		
Biogenic carbon content	Unit	Value
Biogenic carbon content in product	Kg C	0
Biogenic carbon content in accompanying packaging	Kg C	0.133

## References

- General Programme Instructions of the International EPD® System. Version 3.01
- ISO 14020: 2000 Environmental labels and declarations — General principles
- ISO 14025: 2010 Environmental labels and declarations – Type III environmental declarations
  - Principles and procedures
- ISO 14040: 2006 Environmental management — Life cycle assessment — Principles and Framework
- ISO 14044: 2006 Environmental management — Life cycle assessment — Requirements and guidelines
- PCR 2019:14 Construction products (EN 15804:A2) (1.2.5)
- EN 15804:2012+A2:2019/AC:2021: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- LCA report for C05 V0
- LCA report for C07 V0

