



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-5969

Published on 10/04/2026, last updated on 10/04/2026, valid until 09/04/2026

Slim Panel Performer G7

OPPLE Lighting Co., Ltd.



This EPD is intended for business-to-business and/or business-to-consumer communication. 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. 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.



Created with One Click LCA

MANUFACTURER AND SITE

Manufacturer	OPPLE Lighting Co., Ltd.
Address	Room 411, Building 1 No. 6111, Longdong Avenue, Pudong New District, Shanghai City 201201, P. R. China
Contact details	zj@opple.com
Website	https://www.opple.com.cn/
Place of production	No.103 Zhongan Avenue, Yanjiang Village, Minzhong Street, Zhongshan City, Guangdong Province 528441, P. R. China.
Place(s) of raw material origin	China
Place(s) of installation and use	Global
Period for data	05/25-10/25

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	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options A4, B6, and modules C1-C4, D
EPD author	Remy Prame Joseph Jerald, One Click LCA UK Ltd
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

PRODUCT SPECIFICATION

Product name	Slim Panel Performer G7
Product number / reference	542016020000
GTIN (Global Trade Item Number)	6937209604637
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	0,68

PRODUCT CLASSIFICATION

Declared operating voltage, Volt	220-240VAC, 180-240VDC
Light source color temperature, Kelvin	4000K
Protection index for water and dust (IP)	IP40

Impact resistance index (IK)	03
Luminous flux, Lumen	3740-4930
Electrical power, Watt	22-29
Luminous efficiency, Lm/W	170
Additional characteristics	Not applicable

PRODUCT DESCRIPTION

Slim panel P7 LED panels are high-efficacy, IP54-rated (front side) luminaires designed for superior visual comfort. They feature a high-quality LED construction with an option for a micro-prismatic controller to achieve Unified Glare Rating (UGR) <19, making them suitable for multiple environments. The Slim panel P7 boasts improved efficacy of up to 170lm/W with a luminous output of up to 4930lm. The panels are equipped with a DALI2 driver compatible with 230V push dimming and are available in multiple variants, including versions with an integrated CCT-switch for color selection (3000K-4000K), Tunable White DALI DT8, and a Tunable White Smart version (2700-6500K). Suitable for recessed, suspended, and surface mounting, the slim panel P7 offers versatile lighting solutions for offices, schools, hospitals, and a wide range of commercial spaces.

ABOUT THE MANUFACTURER

As a comprehensive lighting solution provider in the Chinese lighting industry, Oppl Lighting adheres to the brand concept of "Beyond What You See", and takes "Creating Value through Lighting" as its corporate mission. It is people-oriented and committed to innovation. With the ambitious vision of "building a global lighting company", Oppl Lighting has established business operations in over 70 countries and regions including Asia-Pacific, Europe, the Middle East, and South Africa. Oppl Lighting was founded in 1996 and is a comprehensive lighting enterprise that integrates research and development, production, sales and service.

For more information, please visit: <https://www.opple.com.cn/>

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass, kg	1,96
Mass of packaging, kg	0,12

Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 3740-4930 lumens during a reference lifetime of L70 100000 hours, L80 70000 hours, L90 50000 hours
Reference service life (years)	7
Assigned lifetime (hours)	L70 100000 hours L80 70000 hours L90 50000 hours
GWP-total, A1-A3 (kg CO ₂ e)	45,9
GWP-fossil, A1-A3 (kg CO ₂ e)	45,8
Secondary material, inputs (%)	11,4
Secondary material, outputs (%)	44,4
Total energy use, A1-A3 (kWh)	175
Net freshwater use, A1-A3 (m ³)	4,07E-01

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

Not declared = ND.

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.

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

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

PRODUCT & MANUFACTURING SITES GROUPING

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

This EPD is product and factory specific.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	43,8	China
Minerals	1,8	China

Fossil materials	32	China
Bio-based materials	0	-
Electronic parts	22,4	China

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	N/A
Biogenic carbon content in packaging, kg C	0.03

SUBSTANCES, REACH - VERY HIGH CONCERN

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

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA Luminaire EPD Generator v2.2.7. The LCA and EPD have been prepared according to the reference standards, EN 50693, and ISO 14040/14044. Ecoinvent v3.10.1/3.11 and One Click LCA databases were used as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, cut-off, EN 15804+A2'.

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 LED panel is manufactured through a predominantly assembly-based process, using pre-fabricated metal, plastic, and electronic components. All components are transported to the manufacturing facility, where production activities focus on mechanical assembly, electrical integration, and quality control.

Manufacturing begins with the assembly of the metal chassis and aluminium frame, which form the structural housing of the product. Optical components, including light guide plates, diffuser plates, prism sheets, and lenses, are then installed to achieve uniform light distribution. Electrical assembly includes mounting LED modules, printed circuit boards, drivers, and discrete electronic components, followed by soldering, wiring, and installation of connectors and terminal blocks. The assembled product undergoes functional testing and inspection to verify electrical performance and product integrity prior to final enclosure.

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.

Energy consumption during manufacturing is mainly associated with SMT operations, soldering, injection moulding of plastic parts, mechanical assembly, and testing equipment. Electricity is the primary energy carrier. Approximately 25% of the electricity demand is supplied by on-site rooftop photovoltaic systems, while the remaining 75% is sourced from the regional grid supply in China. This energy mix is applied to all production processes and allocated to the declared unit based on total annual production. Limited industrial water is used for facility operations and is allocated on the same basis.

Energy consumption during manufacturing is mainly associated with SMT operations, soldering, injection moulding of plastic parts, mechanical assembly, and testing equipment. Electricity is the primary energy carrier. Approximately **25% of the electricity demand is**

supplied by on-site rooftop photovoltaic systems, while the remaining 75% is sourced from the regional grid supply in China. This energy mix is applied to all production processes and allocated to the declared unit based on total annual production. Limited industrial water is used for facility operations and is allocated on the same basis.

Following assembly and quality control, the finished LED panels are packaged to ensure protection during handling and transportation. Packaging typically consists of corrugated cardboard inner and outer boxes, paper-based inserts and labels, and plastic protective materials, such as polyethylene or polypropylene films and expanded polyethylene corner protectors. Packaging data are modelled at product or annual level and allocated to the declared unit based on factory production volumes.

Manufacturing losses are minimal, with an average production loss of approximately **0.062%**, mainly due to minor assembly scrap and rejected components. No allocation to co-products is applied, as any by-products generated have negligible economic value. All waste streams are treated conservatively using default end-of-life assumptions in accordance with **EN 50693**.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation of the finished LED panels from the manufacturing facility to customer locations is modelled using sales volume-weighted average distances. The distribution scenario includes maritime transport by container ship from Zhongshan, China, to Rotterdam, Netherlands, followed by regional transport within the Netherlands to Opplé's storage facility and final delivery to customers by lorry.

Environmental impacts related to installation (A5) are limited to the treatment of packaging waste materials generated during unpacking at the installation site. The impacts associated with energy use, tools, and ancillary materials during installation are considered negligible and are therefore excluded from the assessment.

PRODUCT USE AND MAINTENANCE (B1-B7)

Environmental impacts during the use phase arise primarily from electricity consumption during operation (B6). Operating energy use is calculated based on a **service life of 100,000 operating hours** and a **rated**

power of 29 W per unit, resulting in a **total lifetime electricity consumption of 2,900 kWh**. Electricity use is modelled using local grid electricity mixes representative of the global use area, including generation-related emissions and transmission losses. A reference service life of 7 years is assumed. Modules B1, B2, B3, B4, B5, and B7 are considered to have no relevant environmental impacts and are therefore excluded from the assessment.

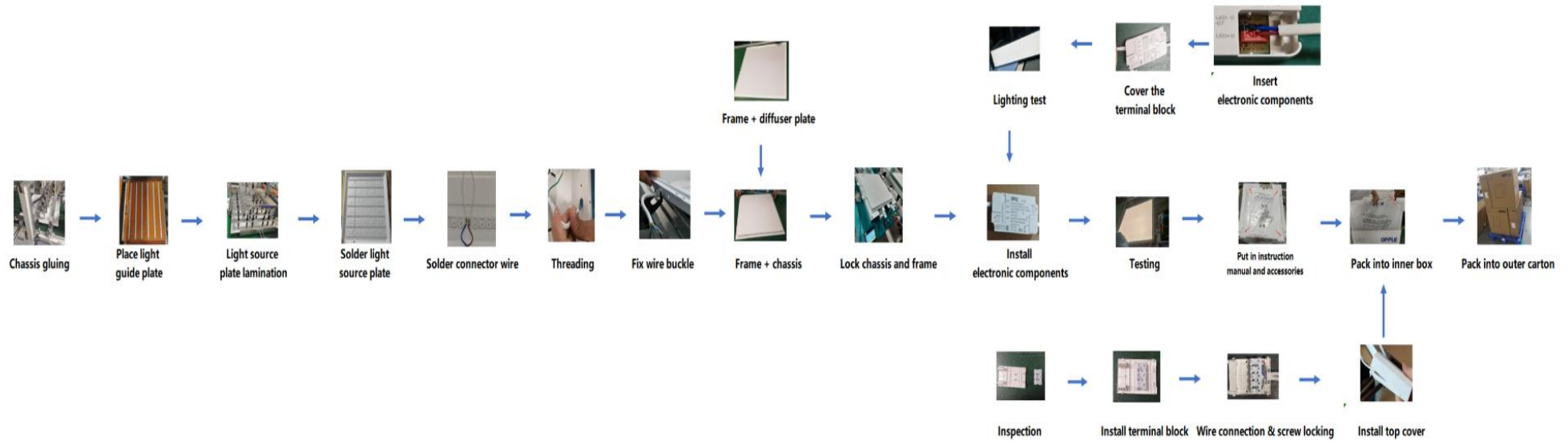
PRODUCT END OF LIFE (C1-C4, D)

The consumption of energy and natural resources during the demolition process is assumed to be negligible. It is assumed that waste generated at end of life is separately collected and transported to an appropriate waste treatment facility. A transport distance of 150 km by lorry is assumed for this stage (Module C2).

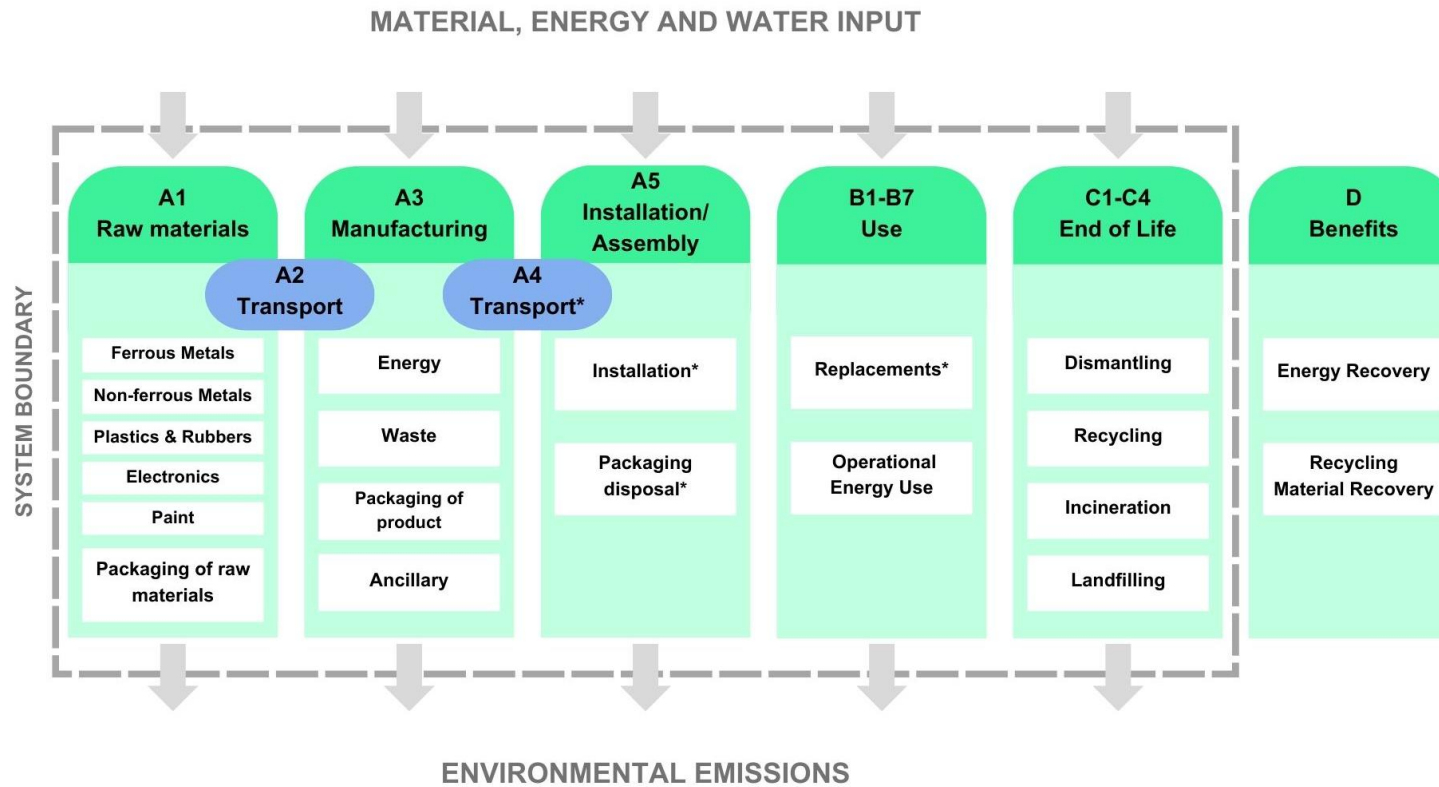
In accordance with EN 50693:2019, end-of-life treatment of the product includes de-pollution, material fraction separation and preparation (such as dismantling, crushing, shredding, and sorting), followed by recycling, other material recovery, energy recovery, and final disposal. In this assessment, default values from Table G.4 of EN 50693 are applied to model the treatment of materials across the different waste management routes.

Due to the material and energy recovery potential of components in the lighting system, a portion of the end-of-life product is assumed to be converted into secondary raw materials through recycling. In addition, energy recovered from incineration is assumed to substitute electricity and heat production. The resulting environmental benefits and associated loads from recycling and energy recovery are reported in Module D.

MANUFACTURING DIAGRAM



LIFE CYCLE FLOW DIAGRAM



*If module declared as per scope of the EPD

ENVIRONMENTAL IMPACT DATA, RESULTS PER DECLARED UNIT

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 ₂ e	4,55E+01	3,80E-02	4,21E-01	4,59E+01	4,24E-01	1,92E-01	ND	ND	ND	ND	ND	1,05E+03	ND	0,00E+00	5,48E-02	9,44E-01	4,51E-01	-4,68E+00
GWP – fossil	kg CO ₂ e	4,52E+01	3,80E-02	5,29E-01	4,58E+01	4,24E-01	8,22E-02	ND	ND	ND	ND	ND	1,05E+03	ND	0,00E+00	5,48E-02	9,46E-01	4,79E-01	-4,68E+00
GWP – biogenic	kg CO ₂ e	1,74E-01	8,60E-06	-1,10E-01	6,39E-02	8,20E-05	1,10E-01	ND	ND	ND	ND	ND	2,53E+00	ND	0,00E+00	1,20E-05	-2,35E-03	-2,79E-02	3,79E-03
GWP – LULUC	kg CO ₂ e	6,84E-02	1,70E-05	1,53E-03	6,99E-02	2,08E-04	1,52E-06	ND	ND	ND	ND	ND	2,13E+00	ND	0,00E+00	2,43E-05	7,97E-05	1,32E-05	-3,05E-03
Ozone depletion pot.	kg CFC-11e	2,93E-06	5,60E-10	7,00E-09	2,94E-06	6,18E-09	6,85E-11	ND	ND	ND	ND	ND	1,51E-05	ND	0,00E+00	7,66E-10	1,07E-09	3,40E-10	-2,24E-08
Acidification potential	mol H ⁺ e	3,48E-01	1,29E-04	2,47E-03	3,50E-01	6,60E-03	4,15E-05	ND	ND	ND	ND	ND	5,36E+00	ND	0,00E+00	1,83E-04	6,93E-04	1,59E-04	-3,43E-02
EP-freshwater ²⁾	kg Pe	5,20E-02	2,95E-06	1,29E-04	5,21E-02	2,38E-05	6,03E-07	ND	ND	ND	ND	ND	1,12E+00	ND	0,00E+00	4,26E-06	2,38E-05	1,31E-05	-2,03E-03
EP-marine	kg Ne	5,96E-02	4,25E-05	5,40E-04	6,02E-02	1,70E-03	2,24E-05	ND	ND	ND	ND	ND	8,95E-01	ND	0,00E+00	5,92E-05	2,16E-04	2,83E-04	-4,98E-03
EP-terrestrial	mol Ne	6,44E-01	4,63E-04	5,64E-03	6,50E-01	1,89E-02	1,93E-04	ND	ND	ND	ND	ND	7,24E+00	ND	0,00E+00	6,44E-04	1,84E-03	7,18E-04	-5,24E-02
POCP (“smog”) ³⁾	kg NMVOce	1,93E-01	1,91E-04	2,26E-03	1,95E-01	5,50E-03	4,90E-05	ND	ND	ND	ND	ND	2,47E+00	ND	0,00E+00	2,54E-04	5,12E-04	2,13E-04	-1,63E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,35E-02	1,06E-07	2,47E-05	1,35E-02	8,22E-07	1,35E-08	ND	ND	ND	ND	ND	2,10E-03	ND	0,00E+00	1,80E-07	1,49E-06	5,39E-08	-6,97E-05
ADP-fossil resources	MJ	5,96E+02	5,51E-01	7,54E+00	6,05E+02	5,70E+00	3,65E-02	ND	ND	ND	ND	ND	2,38E+04	ND	0,00E+00	7,68E-01	7,07E-01	2,42E-01	-5,64E+01
Water use ⁵⁾	m ³ e depr.	1,60E+01	2,72E-03	1,17E-01	1,61E+01	2,29E-02	1,14E-02	ND	ND	ND	ND	ND	4,49E+02	ND	0,00E+00	3,56E-03	7,03E-02	3,09E-02	-7,03E-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	2,64E-06	3,80E-09	3,29E-08	2,68E-06	2,85E-08	2,96E-10	ND	ND	ND	ND	ND	1,77E-05	ND	0,00E+00	4,35E-09	7,36E-09	1,77E-09	-2,58E-07
Ionizing radiation ⁶⁾	kBq U235e	4,24E+00	4,80E-04	2,28E-02	4,27E+00	3,94E-03	6,70E-05	ND	ND	ND	ND	ND	6,07E+02	ND	0,00E+00	6,22E-04	3,43E-03	3,46E-04	-3,09E-01
Ecotoxicity (freshwater)	CTUe	1,05E+03	7,79E-02	2,26E+00	1,05E+03	6,42E-01	3,02E-01	ND	ND	ND	ND	ND	2,79E+03	ND	0,00E+00	1,22E-01	2,06E+00	5,95E+00	-1,13E+01
Human toxicity, cancer	CTUh	3,10E-08	6,26E-12	8,99E-11	3,11E-08	7,93E-11	1,37E-11	ND	ND	ND	ND	ND	2,18E-07	ND	0,00E+00	9,31E-12	1,39E-10	6,37E-11	-8,32E-10
Human tox. non-cancer	CTUh	1,53E-06	3,57E-10	3,55E-09	1,54E-06	2,71E-09	5,14E-10	ND	ND	ND	ND	ND	9,68E-06	ND	0,00E+00	4,81E-10	4,38E-09	3,02E-09	2,88E-09
SQP ⁷⁾	-	1,97E+02	5,55E-01	1,26E+01	2,10E+02	3,49E+00	1,12E-02	ND	ND	ND	ND	ND	3,16E+03	ND	0,00E+00	4,59E-01	6,94E-01	3,16E-01	-1,00E+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 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	5,99E+01	7,55E-03	1,71E+00	6,16E+01	6,34E-02	-1,50E+00	ND	ND	ND	ND	ND	4,42E+03	ND	0,00E+00	1,05E-02	8,06E-02	-5,10E-01	-3,45E+00
Renew. PER as material	MJ	7,89E-03	0,00E+00	8,93E-01	9,01E-01	0,00E+00	-8,94E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	-7,07E-03	0,00E+00
Total use of renew. PER	MJ	5,99E+01	7,55E-03	2,60E+00	6,25E+01	6,34E-02	-2,39E+00	ND	ND	ND	ND	ND	4,42E+03	ND	0,00E+00	1,05E-02	8,06E-02	-5,17E-01	-3,45E+00
Non-re. PER as energy	MJ	5,64E+02	5,51E-01	5,06E+00	5,70E+02	5,70E+00	-1,18E+00	ND	ND	ND	ND	ND	2,38E+04	ND	0,00E+00	7,68E-01	-1,92E+01	-1,43E+01	-5,29E+01
Non-re. PER as material	MJ	3,25E+01	0,00E+00	1,34E+00	3,38E+01	0,00E+00	-1,37E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,86E+01	-1,38E+01	0,00E+00
Total use of non-re. PER	MJ	5,97E+02	5,51E-01	6,40E+00	6,03E+02	5,70E+00	-2,54E+00	ND	ND	ND	ND	ND	2,38E+04	ND	0,00E+00	7,68E-01	-3,78E+01	-2,81E+01	-5,29E+01
Secondary materials	kg	2,23E-01	0,00E+00	0,00E+00	2,23E-01	0,00E+00	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
Renew. secondary fuels	MJ	1,41E-02	2,98E-06	3,60E-04	1,45E-02	2,02E-05	9,54E-07	ND	ND	ND	ND	ND	1,08E-02	ND	0,00E+00	4,40E-06	2,88E-05	4,37E-06	-3,72E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	4,04E-01	8,14E-05	2,86E-03	4,07E-01	6,49E-04	1,88E-04	ND	ND	ND	ND	ND	1,70E+01	ND	0,00E+00	1,02E-04	1,30E-03	-4,27E-04	-3,42E-02

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	5,13E+00	9,33E-04	4,95E-02	5,18E+00	8,76E-03	2,97E-03	ND	ND	ND	ND	ND	5,06E+01	ND	0,00E+00	1,34E-03	2,09E-02	5,98E-02	-8,07E-01
Non-hazardous waste	kg	1,31E+02	1,73E-02	1,40E+00	1,32E+02	1,46E-01	1,27E-01	ND	ND	ND	ND	ND	5,47E+03	ND	0,00E+00	2,51E-02	5,42E-01	1,82E+00	-2,52E+00
Radioactive waste	kg	1,04E-03	1,17E-07	5,61E-06	1,05E-03	9,64E-07	1,70E-08	ND	ND	ND	ND	ND	1,65E-01	ND	0,00E+00	1,52E-07	8,52E-07	8,62E-08	-7,51E-05

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	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	0,00E+00	0,00E+00	5,11E-04	5,11E-04	0,00E+00	2,00E-06	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	8,71E-01	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	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	0,00E+00	0,00E+00	3,56E-03	3,56E-03	0,00E+00	2,11E-05	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,86E+00	0,00E+00	0,00E+00
Exported energy: Electricity	MJ	0,00E+00	0,00E+00	1,50E-03	1,50E-03	0,00E+00	7,84E-06	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,04E+00	0,00E+00	0,00E+00
Exported energy: Heat	MJ	0,00E+00	0,00E+00	2,06E-03	2,06E-03	0,00E+00	1,22E-05	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,81E+00	0,00E+00	0,00E+00

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation – A3 (Energy data source)

1. Energy supply, electricity transformation and distribution, distribution of medium, Market group for electricity, medium voltage, China, ecoinvent 3.10.1, 1.01 kgCO₂e/kWh
2. Energy supply, electricity production, solar photovoltaic, Electricity production, photovoltaic, 570kWp open ground installation, multi-Si, guangdong, ecoinvent 3.10.1, 0.0829 kgCO₂e/kWh

Transport scenario documentation - A4

1. Transport, freight, lorry >32 metric ton, EURO5
2. Transport, freight, sea, container ship

Use stages scenario documentation - B6 (Energy data source)

1. Energy supply, electricity transformation and distribution, distribution of medium, Market group for electricity, medium voltage, Europe

TRANSPORT SCENARIO DOCUMENTATION - A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50 %
Bulk density of transported products / kg/m ³	1,62E+01
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1

USE STAGES SCENARIO DOCUMENTATION - B6-B7 USE OF ENERGY AND WATER

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	Not applicable
Net fresh water consumption / m ³	0
Power output of equipment / kW	1
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc. / Units as appropriate	-
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants / Units as appropriate	a reference lifetime of L70 100000 hours, L80 70000 hours, L90 50000 hours

END OF LIFE SCENARIO DOCUMENTATION

Scenario information	Value
Collection process – kg collected separately	1,96
Collection process – kg collected with mixed construction waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	8,71E-01
Recovery process – kg for energy recovery	3,04E-01
Disposal (total) – kg for final deposition	7,86E-01
Scenario assumptions e.g. transportation	Lorry, 16-32 metric ton, EURO5; 150 km- C2 waste transportation

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.



Program assistant: Xinyuan Zhang



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: Hai Ha Nguyen

Tool verification validity: 28 March 2025 - 27 March 2028

APPENDIX

SCALING TABLES FOR PRODUCT VARIATIONS

The following 44 product variants are included in this EPD as part of non-linear scaling options for modules A1–A3. The product range comprises three primary luminaire sizes: 595 × 595 mm (SQ595), 620 × 620 mm (SQ620), and 1195 × 295 mm (RE295).

Configuration-specific LCA models have been developed for each product geometry have been developed for each of these configurations, with LEDPanelS-P7 Sq595-22/29W-840-U19 defined as the reference product. Across the different sizes, the luminaires share the same fundamental design, material composition, and manufacturing processes, with only minor variations in dimensions, mass, and driver configuration. Variations in driver type, correlated colour temperature, and power settings are achieved through adjustments at component level and do not result in significant changes to the overall bill of materials.

Therefore, the environmental impacts for modules A1–A3 are reported by grouping the results according to the three size categories (SQ595, SQ620, and RE295), with GWP-total values presented for each group.

Product Code	Model name	Driver Model	Product dimensions (L × W × H) mm	Product Weight kg/Unit	A1 GWP TOTAL (Kg CO2e)	A2 GWP TOTAL (Kg CO2e)	A3 GWP TOTAL (Kg CO2e)	A1-A3 GWP TOTAL (Kg CO2e)
542016021100	LED SPL-RC-P7 SQ595-29W-DALI-TW-U19	DALI2	595x595x32	2	4,55E+01	3,80E-02	4,21E-01	4,59E+01
542016020700	LED SPL-RC-P7 SQ595-29W-BLE-TW-U19	BLE2	595x595x32	2				
542016020200	LED SPL-RC-P7 SQ595-22/29W-U19	On/Off	595x595x32	2				
542016020000*	LED SPL-RC-P7 SQ595-22/29W-U19	On/Off	595x595x32	2				
542016018700	LED SPL-RC-P7 SQ595-29W-BLE-U19	BLE2	595x595x32	2				
542016018500	LED SPL-RC-P7 SQ595-29W-BLE-U19	BLE2	595x595x32	2				
542016017200	LED SPL-RC-P7 SQ595-29W-DALI-U19	DALI2	595x595x32	2				
542098055600	LED SPL-RC-P7 SQ595-29W-DALI-U19	DALI2	595x595x32	2				
542098055700	LED SPL-RC-P7 SQ595-22/29W-U19	On/Off	595x595x32	2				
542016016300	LED SPL-RC-P7 SQ595-29W-BLE-U19	BLE2	595x595x32	2				
542016020600	LED SPL-RC-P7 SQ595-29W-DALI-U19	DALI2	595x595x32	2				
542016019200	LED SPL-RC-P7 SQ595-22/29W-CS-U19	On/Off	595x595x32	2				

542016019100	LED SPL-RC-P7 SQ595-29W-DALI- CS-U19	DALI2	595x595x32	2				
542016019300	LED SPL-RC-P7 SQ595-29W-BLE- CS-U19	BLE2	595x595x32	2				
542016016700	LED SPL-RC-P7 SQ595-29W-10V- CS-U19	1-10V	595x595x32	2				
542016017600	LED SPL-RC-P7 RE295-29W-DALI- TW-U19	DALI2	1195x295x32	2.1	4,36E+01	3,60E-02	-2,12E-01	4,35E+01
542016017500	LED SPL-RC-P7 RE295-29W-BLE- TW-U19	BLE2	1195x295x32	2.1				
542016016800	LED SPL-RC-P7 RE295-22/29W- U19	On/Off	1195x295x32	2.1				
542016018100	LED SPL-RC-P7 RE295-22/29W- U19	On/Off	1195x295x32	2.1				
542098055800	LED SPL-RC-P7 RE295-29W-BLE- U19	BLE2	1195x295x32	2.1				
542016020100	LED SPL-RC-P7 RE295-29W-BLE- U19	BLE2	1195x295x32	2.1				
542016017300	LED SPL-RC-P7 RE295-29W-DALI- U19	DALI2	1195x295x32	2.1				
542098055500	LED SPL-RC-P7 RE295-29W-DALI- U19	DALI2	1195x295x32	2.1				
542016020300	LED SPL-RC-P7 RE295-22/29W- U19	On/Off	1195x295x32	2.1				
542016019500	LED SPL-RC-P7 RE295-29W-BLE- U19	BLE2	1195x295x32	2.1				
542016018800	LED SPL-RC-P7 RE295-29W-DALI- U19	DALI2	1195x295x32	2.1				
542016016400	LED SPL-RC-P7 SQ620-29W-DALI- TW-U19	DALI2	620x620x34	2.2				
542016020800	LED SPL-RC-P7 SQ620-29W-BLE- TW-U19	BLE2	620x620x34	2.2				
542016018600	LED SPL-RC-P7 SQ620-22/29W- U19	On/Off	620x620x34	2.2				
542016017000	LED SPL-RC-P7 SQ620-22/29W- U19	On/Off	620x620x34	2.2				
542016019900	LED SPL-RC-P7 SQ620-29W-BLE- U19	BLE2	620x620x34	2.2				
542016019600	LED SPL-RC-P7 SQ620-29W-BLE- U19	BLE2	620x620x34	2.2				

542016016100	LED SPL-RC-P7 SQ620-29W-DALI- U19	DALI2	620x620x34	2.2	4,88E+01	3,79E-02	-1,92E-02	4,88E+01
542016017400	LED SPL-RC-P7 SQ620-29W-DALI- U19	DALI2	620x620x34	2.2				
542016020900	LED SPL-RC-P7 SQ620-22/29W- U19	On/Off	620x620x34	2.2				
542016016000	LED SPL-RC-P7 SQ620-29W-BLE- U19	BLE2	620x620x34	2.2				
542016019400	LED SPL-RC-P7 SQ620-29W-DALI- U19	DALI2	620x620x34	2.2				
542016021200	LED SPL-RC-P7 SQ620-22/29W- U19	On/Off	620x620x34	2.2				
542016018400	LED SPL-RC-P7 SQ620-29W-BLE- U19	BLE2	620x620x34	2.2				
542016016500	LED SPL-RC-P7 SQ620-29W-DALI- U19	DALI2	620x620x34	2.2				
542016016600	LED SPL-RC-P7 SQ620-22/29W- CS-U19	On/Off	620x620x34	2.2				
542016018900	LED SPL-RC-P7 SQ620-29W-DALI- CS-U19	DALI2	620x620x34	2.2				
542016019800	LED SPL-RC-P7 SQ620-29W-BLE- CS-U19	BLE2	620x620x34	2.2				
542016018300	LED SPL-RC-P7 SQ620-29W-10V- CS-U19	1-10V	620x620x34	2.2				

* being the representative product from the panel P7 family.

COMPARISON WITH PEP ECOPASSPORT (RESULTS PER FUNCTIONAL UNIT)

To facilitate comparison with similar luminaire EPDs published under PEP Ecopassport (following PEP PSR-0014-ed1.0-EN-2018 07 18), a common basis of comparison is established using a standardized functional unit.

This unit is defined as follows: “Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours”.

For such comparisons, the coefficient to be multiplied for calculation of environmental impacts of the manufacturing, distribution, installation, use and end-of-life stages are carried out as follows for each life cycle stage:

Environmental impacts of PEP (for 1,000 lumens over 35,000 hours) = Environmental impacts of the reference product * Coefficient

Coefficient for L70 = (1,000 / Outgoing luminous flux of the reference product in lumens) x (35,000 / Assigned product lifetime of the reference product in hours)

$$= (1,000 / 36,000) * (35,000 / 100,000) \\ = 0.0097$$

Coefficient for L80 = (1,000 / Outgoing luminous flux of the reference product in lumens) x (35,000 / Assigned product lifetime of the reference product in hours)

$$= (1,000 / 36,000) * (35,000 / 70,000) \\ = 0.0138$$

Coefficient for L90 = (1,000 / Outgoing luminous flux of the reference product in lumens) x (35,000 / Assigned product lifetime of the reference product in hours)

$$= (1,000 / 36,000) * (35,000 / 50,000) \\ = 0.0194$$

For more information, please contact Oppla Lighting.