Environmental Product Declaration

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

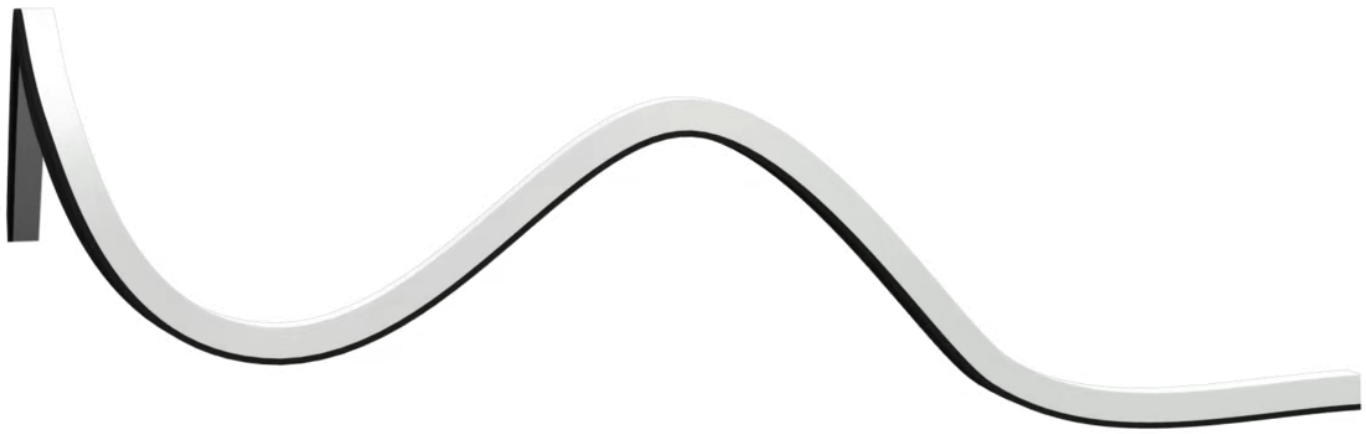
LED Flex Linear Light

from

Shenzhen Clear Lighting Co., Ltd.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-12832
Publication date:	2024-03-12
Valid until:	2029-03-12
Type of EPD:	EPD of multiple products, based on worst-case results. Product models: F15, F21, F22, F23, F16, F2222, Luxpave IG-85100, Luxpave IG-8069, Panoray 3525, Arcflex 1617, Swaylux 9261, F8035, R30.

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



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): < *CONSTRUCTION PRODUCTS, PCR 2019:14, version 1.3.2 UN CPC code:46539> This EPD follows additional requirements for construction products considered as Electronic or Electric Equipment.*
PCR review was conducted by: < *The Technical Committee of the International EPD® System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@ environdec.com>*
Life Cycle Assessment (LCA)
LCA accountability: *<Abby Qin, April He, Tony Sun, Solomon J. Zhou, Aryn Yang, TÜV SÜD Certification and Testing (China) Co., Ltd.>*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: < *Sunil Kumar, SIPL Pvt Ltd* > Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ 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
Shenzhen Clear Lighting Co., Ltd.
901#, 9F, Unit B, Block B(South Area), Zhuoyue Meilin Center Plaza, Meilin Road, Meilin Street, Futian District, Shenzhen City, Guangdong Province, China 518049
Contact: Susan Chou, susan@clearlighting.com

Description of the organisation
Shenzhen Clear Lighting Co., Ltd. (hereinafter referred to as Clear Lighting), the leading manufacturer of LED flex linear outdoor lighting with a global presence in more than 50 countries for 23 years, owns the unique ClearTech™ technology and 131 proprietary patents. With many years of technology accumulation and rich industry experience, our company is constantly pushing the boundaries of technology and exploring the niche markets of LED flex linear by overcoming the technical challenges, such as architecture, underwater, public transportation, marine, high temperature and high humidity, flammable and explosive areas where the environments are complicated and hazardous. Clear Lighting is committed to minimizing its carbon footprint and helping businesses advancing their sustainable development goals. With a technology and customer-centric philosophy in mind, we work with our customers to find new opportunities of LED flex linear.

Name and location of production site
Huizhou Clear Lighting Co., Ltd.
Clear Lighting Production Base, Tiantou Village, Shatian Town, Huiyang District, Huizhou, Guangdong, China.

Product information

Product name: LED Flex Linear Light

Product identification
This EPD represents Clear's 13 models of LED Flex Linear Light product, namely F15, F21, F22, F23, F16, F2222, Luxpave IG-85100, Luxpave IG-8069, Panoray 3525, Arcflex 1617, Swaylux 9261, F8035, R30.
This EPD is based on the worst-case result in the environment assessment.

Product description
CLEAR has a total of 13 self-developed LED silicone flexible lights that have been approved by EPD. They come in different sizes, shapes, brightness, and bending directions. These flexible lights can be used in various outdoor and extreme high and low temperature scenes to fulfil varied lighting design demands, including architecture, underwater, sauna, public transportation, landscape, etc. Not only can they serve functional purposes, but also provide decorative lighting to create a unique space atmosphere.

UN CPC code: 46539

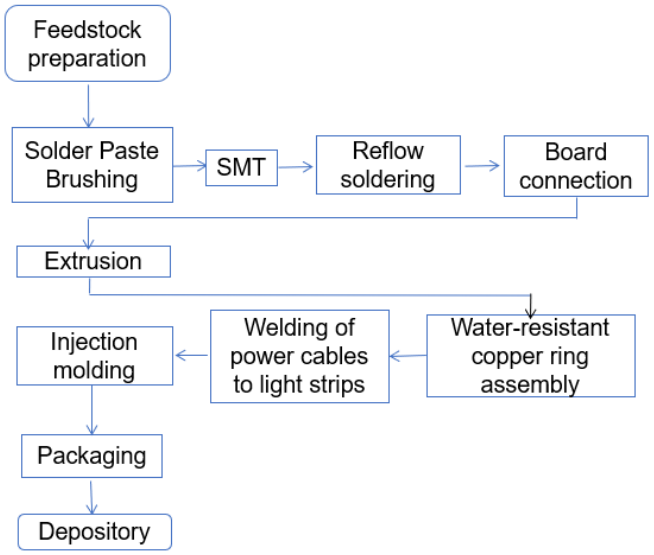
Geographical scope
Modules A1-A3: CN
Modules A4-A5: GLO
Module B and Module C: GLO

Physical characteristics of product

The product consists of three parts, including the LED Flex Linear Light itself, Front Connector and Mounting Profile. The weight of each part and the weight of the packaging per declared unit as well as physical characteristics of the products are shown in Table below.

Product model	LED Flex Linear Light	Front Connector	Mounting Profile	Package	Gross weight (kg/declared unit)	Cross-sectional area	Rated power (w)
F15	0.325	0.065	0.275	0.135	0.800	11.5mm*21mm	12
F21	0.490	0.170	0.141	0.134	0.936	11.5mm*29mm	12
F22	0.350	0.029	0.245	0.199	0.823	16mm*17mm	12
F23	0.140	0.027	0.148	0.077	0.392	10mm*10mm	4.5
F16	0.129	0.064	0.109	0.074	0.377	15.5mm*6mm	12
F2222	0.522	0.168	0.376	0.142	1.208	22mm*22mm	16.5
Luxpave IG-85100	0.210	0.031	5.611	5.647	11.498	85mm*100mm	12
Luxpave IG-8069	0.210	0.031	1.376	0.163	1.779	80mm*69mm	12
Panoray 3525	1.000	0.033	0.746	0.541	2.320	35mm*25mm	16
Arcflex 1617	0.330	0.029	0.567	0.213	1.139	16mm*17mm	6.5
Swaylux 9261	0.350	0.010	1.843	0.307	2.509	92mm*61mm	15
F8035	1.900	0.022	1.147	0.353	3.421	80mm*35mm	24
R30	0.650	0.026	0.093	0.408	1.177	Diameter: 30mm	9

Production process flow of product



LCA information

Functional unit / declared unit: 1m of LED Flex Linear Light. The conversion factors to mass of worst-case result are 3.421.

Reference service life: 60000hours

Time representativeness: 2022-11-01 to 2023-10-31

Database(s) and LCA software used:

Ecoinvent 3.9.1 Database, Industry data 2.0, Simapro 9.5.0.0 Software

Product representativeness

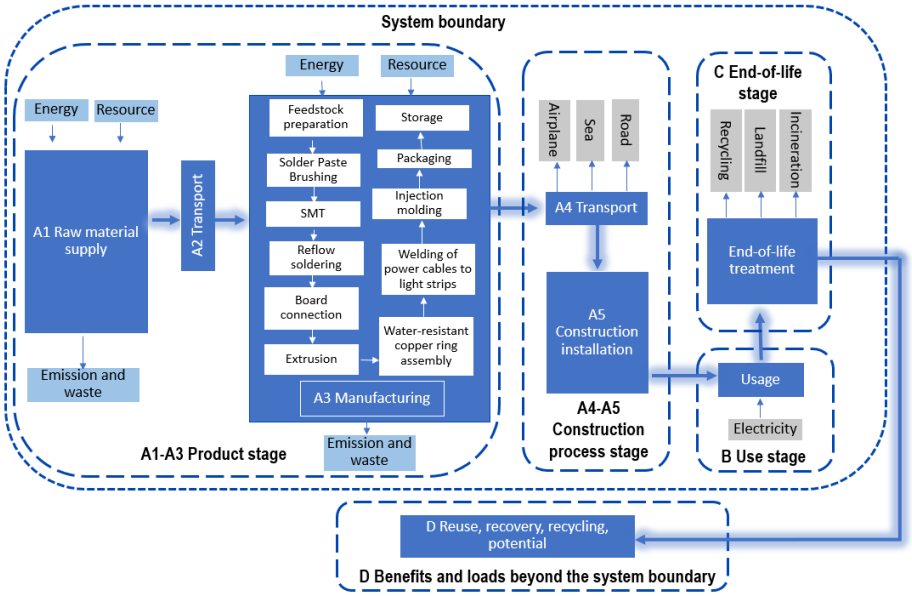
In accordance with the PCR, similar products from a single or several manufacturing sites covered by the same PCR and manufactured by the same company with the same major steps in the core processes may be grouped and thereby included in the same EPD. For EPD does not claim compliance with ISO 21930, variations above 10% are allowed, if justified in the LCA report and the EPD declares the variation of each impact indicator results for which the variation is above 10%.

For this EPD, since the included products are manufactured from same factory with same major steps, and the LCA results variation between different product models are above 10%. Therefore, the worst-case result for the included modules from A to C, per declared environmental performance indicator, i.e. the LCA result of product model F8035 is declared in the EPD report.

Description of system boundaries:

Cradle to gate with options, modules C1-C4, module D and with optional modules A4-A5 and B1-B7

System diagram



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

	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	CN	CN	CN	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific data used	2.21%-22.36%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-93.89%/+0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Scenario assumptions

The products assessed in the present report relate to scenario assumptions. In Module A4, since it is not possible to specify the exact distribution location of each product sold overseas, it was assumed that the average distance of the product from the overseas port to the final customer is 250km, in accordance with *Product Environmental Footprint Category Rules Guidance Version 6.3 (PEFCR guidance)*. In Module B6, the reference service life of products is set to be 60000 hours. In the C2 module, it is difficult to obtain specific data for the waste after use of the product, so the end-of-life transport distance of 100 km is assumed, referring to *Product Environmental Footprint Category Rules Guidance Version 6.3 (PEFCR guidance)*.

Cut-off criteria

According to PCR 2019:14 Construction products, LCI data shall include a minimum of 95% of total inflows (mass and energy) per module (e.g. A1-A3, A4-A5, B1-B5, B6-B7, C1-C4 and module D). In addition, at least 95% of the environmental impact per module shall be included as well.

All inputs and outputs for which data is available are included in the LCA. Data gaps are filled with conservative assumptions and generic data. In case of insufficient input data or data gaps for a unit process, the cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass input of that unit process. The total of neglected input flows per information module shall be a maximum of 5% of energy usage and mass.

In this life cycle assessment, all inputs and outputs for which data is available are included in the LCA. Data gaps are filled with conservative assumptions and generic data. Based on the practice, 0% of total energy usage and less than 1% of total mass input in this LCA is cut-off, and none of module is cut-off. In addition, the consumption and emissions of roads and plants' infrastructure, equipment of each process, personnel and living facilities in the plants were excluded.

Allocation rules

In this assessment, there are no co-products in the production. Hence, there is no need for materials allocation. The packaging material are allocated by length of products in one unit of package (m). The energy consumption, resource use, emissions and wastes from the manufacturing process are allocated to the total yield of factory by length (m).

Other information

Energy resource: The data for the generation of electricity applied is residual electricity mixes on the market, namely the China Southern Power Grid Mix in the Ecoinvent 3.9.1 (cut-off) database. Its GWP-GHG impact is 0.650 kgCO_2eq/kWh. The reference year of electricity dataset is 2014~2022.

Content information

The content information of the product is shown in Table below. According to EN 15804:2019, claims for biogenic carbon content are omitted as the biogenic carbon contained in the product is significantly less than 5 % of the total mass. The package of product includes plastics, corrugated board boxes and etc., which are also shown in the table. In accordance with the PCR 2019:14 CONSTRUCTION PRODUCTS, since the share of biobased materials of packages are unknown, this part of the content declaration is declared as 0% as a conservative estimation.

Dangerous substances from the candidate list of SVHC for Authorization of the product were tested, and the results of the product test report showed that, based on the specific range and screening tests, the SVHC detection results in the submitted samples were ⩽ 0.1% (w/w). No post-consumer material was used for the production of product.

Product components	**F15**	**F21**	**F22**	**F23**	**F16**	**F2222**
LED	8.6900E-04	8.6900E-04	1.3010E-03	1.6610E-03	8.6400E-04	1.6850E-03
PC	2.2000E-04	2.2000E-04	2.2000E-04	2.2000E-04	2.2000E-04	2.2000E-04
PCB	1.0870E-02	1.0870E-02	1.2370E-02	8.0000E-03	1.6020E-02	1.2358E-02
PET	1.5300E-02	8.5000E-03	1.5300E-02	7.1000E-03	8.5000E-03	1.5300E-02
Stainless steels	5.3500E-03	5.3500E-03	5.3500E-03	5.3500E-03	5.3500E-03	5.3500E-03
Cables	5.2502E-02	1.5610E-01	1.5540E-02	1.5540E-02	5.2502E-02	1.5696E-01
Silicon dioxide	9.5850E-03	/	9.5850E-03	3.3300E-03	/	9.5850E-03
Silicone	3.0000E-01	4.4010E-01	2.8600E-01	1.2800E-01	8.7500E-02	5.4900E-01
Silicone oil	8.4580E-04	/	8.4580E-04	2.9390E-04	/	8.4580E-04
IC	3.3000E-04	3.3000E-04	4.9500E-04	/	3.3000E-04	5.5000E-04
Brass	2.2890E-02	2.2890E-02	3.2890E-02	1.4490E-02	2.2890E-02	2.2890E-02
Aluminum alloy	2.4000E-01	1.3600E-01	2.1000E-01	1.3100E-01	1.0400E-01	3.4100E-01
Raw rubber	1.2850E-02	/	1.2850E-02	4.4645E-03	/	1.2850E-02
Chip Resistors	1.5200E-02	1.5200E-02	1.5272E-02	2.1600E-04	1.4400E-02	1.6008E-02
Chip diode	7.8000E-05	7.8000E-05	1.1700E-04	/	7.8000E-05	1.5200E-04
Liquid silicone	5.0000E-03	6.2000E-03	5.0000E-03	3.3000E-03	4.2000E-03	4.4000E-03
Column Resistors	7.4800E-05	7.4800E-05	3.5100E-03	/	7.4800E-05	/
Packaging materials	**F15**	**F21**	**F22**	**F23**	**F16**	**F2222**
PP	3.5800E-02	2.8800E-02	4.2800E-02	1.9300E-02	1.7900E-02	2.8800E-02
Packaging paper	9.8985E-02	1.0565E-01	1.5585E-01	5.7658E-02	5.6258E-02	1.1286E-01

Product components	IG85100	IG 8069	Panoray 3525	Arcflex 1617	Swaylux 9261	F8035	R30
LED	1.0080E-03	1.0080E-03	3.3600E-04	1.5120E-03	1.0080E-03	2.0210E-03	2.8800E-03
PC	/	/	1.3228E-01	2.2000E-04	/	/	/
PCB	1.8300E-02	1.8300E-02	3.2615E-03	6.3700E-03	1.4000E-02	1.6320E-02	1.1680E-02
PET	1.1000E-02	1.4456E-02	1.2700E-02	8.5000E-03	/	8.5000E-03	3.7800E-03
GF	/	/	/	/	/	/	1.2000E-03
Stainless steels	4.7657E+00	1.2162E-01	3.2500E-02	1.4420E-02	8.9192E-01	3.2500E-02	4.0200E-03
Cables	8.6280E-03	8.6280E-03	2.5923E-02	1.7560E-02	7.7700E-03	1.5540E-02	1.5572E-02
Silicon dioxide	/	3.1968E-03	1.0980E-02	1.3880E-01	/	/	/
Steel plate	/	/	/	1.9272E-01	/	/	/
Silicone	1.8000E-01	1.8508E-01	1.0620E+00	3.4500E-01	5.0820E-01	1.9559E+00	6.5000E-01
Silicone oil	/	2.8220E-04	9.6880E-04	1.3715E-02	/	/	/
IC	1.6500E-04	1.6500E-04	1.6500E-04	2.4750E-04	1.6500E-04	3.3000E-04	/
Brass	7.8900E-03	7.8900E-03	3.2800E-03	7.9800E-03	5.0000E-02	1.5000E-02	/
Aluminum alloy	8.4500E-01	1.2384E+00	6.8000E-01	/	7.2762E-01	1.1140E+00	8.8360E-02
Raw rubber	/	4.2860E-03	1.4721E-02	1.9880E-01	/	/	/
Other plastics	9.6383E-03	9.6383E-03	/	/	9.6383E-03	/	6.2000E-04
Chip Resistors	4.8000E-03	4.8000E-03	4.8000E-03	7.2000E-05	4.8000E-05	7.2000E-03	3.2000E-02
Chip diode	6.3720E-04	6.3720E-04	2.1240E-04	/	/	1.2744E-03	/
Copper	2.0172E-04	2.0172E-04	/	/	2.0172E-04	/	/
Liquid silicone	4.7000E-03	4.7000E-03	2.6000E-02	5.0000E-03	6.0000E-03	6.0000E-03	1.0000E-02
Packaging materials	**IG85100**	**IG 8069**	**Panoray 3525**	**Arcflex 1617**	**Swaylux 9261**	**F8035**	**R30**
Plywood	1.9667E-02	/	/	/	/	/	/
PE	/	/	/	/	2.3200E-02	/	/
PP	2.5571E-02	2.5571E-02	1.1320E-01	4.8000E-02	2.0457E-02	4.9877E-02	8.5600E-02
Packaging paper	5.6743E-02	1.3701E-01	4.2797E-01	1.6500E-01	2.6296E-01	3.0317E-01	3.2268E-01

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

This LCA analysis applied the EN 15804+A2(adapted) V1.00 as the calculation method.

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.1064E+01	1.8458E+01	1.4245E-01	0	0	0	0	0	1.0490E+03	0	0	3.1644E-02	1.5393E-01	4.7123E+00	-1.7071E+01
GWP-biogenic	kg CO_2 eq.	1.4719E-01	1.6934E-03	5.3303E-02	0	0	0	0	0	2.2405E+00	0	0	1.0284E-05	4.2135E-04	2.3774E-03	-1.5900E-02
GWP-luluc	kg CO_2 eq.	3.9905E-02	1.3969E-03	0.0000E+00	0	0	0	0	0	2.2172E+00	0	0	1.4986E-05	3.1450E-04	1.1816E-03	-2.3120E-02
GWP-total	kg CO_2 eq.	2.1251E+01	1.8461E+01	1.9575E-01	0	0	0	0	0	1.0534E+03	0	0	3.1669E-02	1.5466E-01	4.7159E+00	-1.7110E+01
ODP	kg CFC 11 eq.	2.9899E-06	2.8870E-07	0.0000E+00	0	0	0	0	0	7.3995E-06	0	0	6.9647E-10	1.1033E-09	3.0547E-07	-5.3455E-07
AP	mol H^+ eq.	1.6546E-01	8.1230E-02	1.2796E-03	0	0	0	0	0	5.4537E+00	0	0	1.3140E-04	8.5087E-04	6.6023E-03	-1.1245E-01
EP-freshwater	kg P eq.	1.0143E-02	2.3938E-04	0.0000E+00	0	0	0	0	0	4.9959E-01	0	0	2.2669E-06	7.3927E-05	1.2974E-03	-5.2357E-03
EP-marine	kg N eq.	2.4581E-02	3.3063E-02	5.0758E-04	0	0	0	0	0	1.0344E+00	0	0	4.9833E-05	1.5683E-04	1.6009E-03	-1.8822E-02
EP-terrestrial	mol N eq.	2.5963E-01	3.5456E-01	5.5586E-03	0	0	0	0	0	1.0441E+01	0	0	5.3157E-04	1.6857E-03	1.5500E-02	-1.9659E-01
POCP	kg NMVOC eq.	8.4536E-02	1.1055E-01	2.1898E-03	0	0	0	0	0	3.1052E+00	0	0	1.9959E-04	4.7551E-04	5.5363E-03	-5.6322E-02

ADP-minerals&metals*	kg Sb eq.	1.1514E-03	3.4518E-06	0.0000E+00	0	0	0	0	0	5.8621E-03	0	0	8.5927E-08	1.4186E-06	6.1106E-06	-1.0297E-05
ADP-fossil*	MJ	2.6822E+02	2.4468E+02	0.0000E+00	0	0	0	0	0	1.3610E+04	0	0	4.6563E-01	1.9656E+00	2.2247E+01	-1.5843E+02
WDP*	m^3	1.1979E+01	4.1134E-01	0.0000E+00	0	0	0	0	0	1.8372E+02	0	0	2.2260E-03	2.7145E-02	5.8535E-01	-1.8743E+00
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															
The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. Disclaimer: The use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C are not discouraged.																

** 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.*

Additional mandatory and voluntary impact category indicators

Results per declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.1104E+01	1.8459E+01	1.4245E-01	0	0	0	0	0	1.0512E+03	0	0	3.1659E-02	1.5424E-01	4.7135E+00	-1.7094E+01

[1] 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_2 is set to zero.

Resource use indicators

Results per declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3.1964E+01	7.2321E-01	0.0000E+00	0	0	0	0	0	1.8907E+03	0	0	6.8339E-03	2.6342E-01	9.3634E-01	-9.6218E+00
PERM	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
PERT	MJ	3.1964E+01	7.2321E-01	0.0000E+00	0	0	0	0	0	1.8907E+03	0	0	6.8339E-03	2.6342E-01	9.3634E-01	-9.6218E+00
PENRE	MJ	2.6821E+02	2.4468E+02	0.0000E+00	0	0	0	0	0	1.3609E+04	0	0	4.6562E-01	1.9655E+00	2.2246E+01	-1.5843E+02
PENRM	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
PENRT	MJ	2.6821E+02	2.4468E+02	0.0000E+00	0	0	0	0	0	1.3609E+04	0	0	4.6562E-01	1.9655E+00	2.2246E+01	-1.5843E+02
SM	kg	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
RSF	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
NRSF	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
FW	m^3	3.3578E-01	1.4651E-02	0.0000E+00	0	0	0	0	0	7.5401E+00	0	0	7.3125E-05	1.0842E-03	1.5384E-02	-5.6549E-02
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														

Waste indicators

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.9877E-02	1.6588E-03	0.0000E+00	0	0	0	0	0	2.4238E-02	0	0	2.8933E-06	3.9333E-06	1.5119E-04	-5.2453E-05
Non-hazardous waste disposed	kg	2.8317E+00	2.0265E-01	0.0000E+00	0	0	0	0	0	7.5966E+01	0	0	4.0855E-02	1.9065E-02	8.5266E-01	-3.0259E+00
Radioactive waste disposed	kg	3.1744E-04	1.5378E-05	0.0000E+00	0	0	0	0	0	3.6678E-02	0	0	1.4204E-07	5.0987E-06	1.8947E-05	-1.8392E-04

Output flow indicators

Results per 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	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Material for recycling	kg	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	8.1835E-01
Materials for energy recovery	kg	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Exported energy, electricity	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
Exported energy, thermal	MJ	0.0000E+00	0.0000E+00	0.0000E+00	0	0	0	0	0	0.0000E+00	0	0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

References

1) ISO 14040:2006 Environmental management — Life cycle assessment —Principles and Framework
2) ISO 14044:2006 Environmental management — Life cycle assessment — Principles and guidelines
3) ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
4) EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products
5) EPD International (2021) General Programme Instructions for the International EPD® System. Version 4.0
6) Product category rules (PCR): CONSTRUCTION PRODUCTS, PCR 2019:14, VERSION 1.3.2
7) Zampori, L. and Pant, R., Suggestions for updating the Product Environmental Footprint (PEF) method, EUR 29682 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76- 00654-1, doi:10.2760/424613, JRC115959.
8) Product Environmental Footprint Category Rules Guidance, Version 6.3, May 2018.
9) EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
10) EN 50693:2019 Product category rules for life cycle assessments of electronic and electrical products and systems.

Contact information

EPD owner	CLEAR LIGHTING	Shenzhen Clear Lighting Co., Ltd. Clear Lighting Production 901#, 9F, Unit B, Block B(South Area), Zhuoyue Meilin Center Plaza, Meilin Road, Meilin Street, Futian District, Shenzhen City, Guangdong Province, China 518049 Email: susan@clearlighting.com Phone: +86 0755-86114338
LCA consultancy	TÜV SÜD	TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch 5F, Communication Building, 163 Pingyun Rd, Huangpu West Ave. Guangzhou 510656 P.R. China Email: Abby.Qin@tuvsud.com Phone: +86 20 8325 1455
Programme operator	EPD® The International EPD® System	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden Email: info@environdec.com

EPD®

www.environdec.com