Environmental Product Declaration

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

VEKA N, VEKA S, VEKA M, VEKA L

Street luminaire

from

CARANDINI™

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-08885
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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): *PCR 2019:14 Construction Products), version 1.2.5, CPC code: 46539*
PCR review was conducted by: *The Technical Committee of the International EPD® System. Contact via: infonvirondec.com*
Life Cycle Assessment (LCA)
LCA accountability: *Xavier Puig, Zirkel.*
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: *Elisabet Amat Guasch, GREENIZE Projects, eamat@greenize.es* 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: C y G CARANDINI, S.A.U

Contact: Ricardo Ramón
Quality, Environment, Health and Safety Coordinator
RicardoRamon@Carandini.com
https://carandini.com/

Description of the organisation: Lighting for wellness and personal safety.

For more than 100 years we have been lighting people's lives and, as experts, we offer lighting solutions for public roads and environmental areas, sports facilities, tunnels and infrastructures, and industrial zones. We accompany the people of the 5 continents at work, at home and in their everyday life, bringing security, warmth, and harmony to their lives.

Our mission is to make a difference in people's lives through lighting and technology applied to cities and their different spaces. We offer lighting solutions that provide pleasant and healthy environments for the well-being of people and respectful for biodiversity, generating harmonious spaces that contribute to the development of cities, people and living beings.

We want progress for everyone, and this means a clean and sustainable world. We are leaders in the fight against light pollution, and we consider the environmental impact of all our actions.

Product-related or management system-related certifications:

ISO 9001: 2015
ISO 14001: 2015
All products are produced in accordance with the requirements for CE-marking.

Name and location of production site(s):
E-08186 Lliçà d'Amunt, Barcelona (SPAIN)

Product information

Product name:

This EPD® represents Carandini's VEKA family, including the following versions:

- VEKA N
- VEKA S
- VEKA M
- VEKA L

Each version contains a wide number of product references, resulting from the combination of different parameters: Tº Color, LEDs Nº, Current operation (mA), Total useful flow (lm), Total power with Driver (W), 25ºC efficiency (lm/W) and Power factor. These references are represented by This EPD®.

For detailed information on all VEKA product references, please check the technical documentation available at https://carandini.com.

This is an EPD of multiple products where the worst case option has been applied. The worst case is the product reference VEKA M 3000 K, with a total useful flow of 14.159 lm, efficiency at 25ºC of 128 lm/W, a 32 Led PCB and a type of fixture SE2.The choice of the worst case is based on a combination of the efficiency (lm/W) and the weight of the materials (Kg).

Product description:

VEKA is Carandini's new family of luminaries for street lighting applications. Its elegant aesthetics, state-of-the-art LED technology and the optical distributions it incorporates make it a high-quality solution for urban roads, secondary roads, residential streets, parking lots and bicycle paths.

VEKA is available in four sizes:

VEKA N. Weight approx: 5 kg. Useful flux (794 lm to 11,200 lm). Total power with Driver (6-75 W)
VEKA S. Weight approx: 6 kg. Useful flux (1,500 lm to 13,800 lm). Total power with Driver (12-103 W)
VEKA M. Weight approx: 9 kg. Useful flux (3,128 lm to 22,833 lm). Total power with Driver (21-161 W)
VEKA L. Weight approx: 15 kg. Useful flux (6,569 lm to 48,626 lm). Total Power with Driver (42-313 W).

Four different types of fixations are available:

PT1: Vertical fixing ø 76mm.*.
SE1: Side mounting ø 34/42mm.
SE2: Side mounting ø 49/60mm.
FM1: Wall mounting

UN CPC code:
46539: Other electric lamps and lighting fittings (including lamps and lighting fittings of a kind used for lighting public open spaces or thoroughfares).

Geographical scope: Global

LCA information

Declared unit:
One luminaire VEKA M 3000 K, with a total useful flow of 14.159 lm, efficiency at 25ºC of 128 lm/W, a 32 Led PCB and a type of fixture SE2 with a service life of 23 years.

Reference service life:
A useful life of 23 years is considered, based on the quality guarantee offered to the client.

Time representativeness:
The primary data used were obtained from VEKA's own production facility for the year 2022 and are representative of the product and the production process.

Data quality:

To meet the data quality requirements, the following aspects are mainly considered in this study:

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

For the development of the LCA, the data quality requirements defined by the ISO 14044 standard have been considered.

Database(s) and LCA software used:
The study was carried out using the SimaPro v.9.4.0.2 calculation software and the Ecoinvent 3.8 database.

Description of system boundaries:
Cradle to grave and module D (A + B + C + D).

The life cycle steps analysed are described below:

A1 - Manufacture of components
This phase involves the extraction of the raw materials and the manufacture of the components. Components are shipped from the suppliers to the factory, where they are assembled.

A2 - Transportation of materials to the assembly factory
This module relates to transport from raw material extraction and processing, and component manufacturing to Carandini's manufacturing site.

A3 - Manufacture of the luminaire
Components are assembled at the production centre in Lliçà d'Amunt. They are moved manually from the storage warehouse to "isles" where they are assembled. No ancillary materials are involved in the assembly process. Once the luminaire is assembled, it is packaged and delivered to the customer.

A4 – Transport
VEKA luminaire is distributed worldwide in Europe, Africa, Asia, Oceania and Americas

Product components	Description
Type and fuel consumption of the vehicle, type of vehicles used for the transport; for examp e, trucks for long distance, boat, etc.	Carandini to the building site by road: Lorry 7.5-16 metric ton, EURO6, diesel low sulfur. Carandini to the building site by sea: Container ship, heavy fuel oil
Distance	Km by truck: 777 km Km by sea: 4.055 km
Capacity utilization (including empty return trip)	Assumed by ecoinvent
Apparent density	207 kg/m3
Useful capacity factor	1

A5 - Installation

During the installation of the luminaire, a platform lift is used. This module also includes the treatment of the waste during the installation.

Scenario information	Description	Value per declared unit
Ancillary materials for installation	kg	0
Water use	m3	0
Other resource use	Not applicable	0
Quantitative description of energy type and consumption during the installation process	Machine operation diesel	2 minutes
Waste materials on the building site before waste precessing, generated by the product's installation	Waste packaging materials	2,10 kg
Output materials results of waste proessing at the building site	Cardboard to recycling Cardoard to incineration Cardboard to landfilling Plastic film to recycling Plastic film to incineration Plastic film to landfilling Palet to recycling Palet to incineration Palet to landfilling	0,93 kg 0,14 kg 0,17 kg 0,0020 kg 0,0016 kg 0,0014 kg 0,32 kg 0,27 kg 0,24 kg
Direct emissions to ambient air, soil and water	Not applicable	0

B1-Use
There's no impact of the product at this stage.

B2-Maintenance
No maintenance is required.

B3-Repair
No repairs are required.

B4-Replacement
No replacements are required.

B5-Refurbishment
Over the lifetime of the luminaire (23 years), it is estimated that it is necessary to change the driver three times.

Product components	Description
Refurbishment process	To change the Driver of the luminaires installed in Spain, the user disassembles the luminaire from the post and sends it to the Carandini factory. There, the Driver is replaced, and the luminaire is returned to installation site. To change the Driver in international facilities, Carandini sends the driver replacement to the user by land (Europe) and sea (rest of the world). To change the Driver from local installation sites, the client sends the luminaire to Carandini, who changes the Driver and returns i to the client. 12% of the replacements occur in international markets, 88% in local market.
Refurbishment cycle	3 times during the life cycle of the luminaire
Energy input during refurbishment and amount	Machine operation diesel, 2 minutes
Waste material resulting from refurbishment	WEE: 1,71 kg

B6-In-service energy use
The energy used during the service life is 10,578 kWh.

B7-Water use in service
No water used during the service life.

C1-Disassembly
This module relates to the dismantling of the luminaire at the end-of-life. During the disassembly an elevating platform is used.

C2-End of life Transport
This module relates to the transport of the dismantled luminaire to final waste disposal. An average distance of 50 km from disassembly site to waste processing site is assumed.

C3-Treatment of waste for recycling
This module covers impacts related to sorting and recycling processes for the relevant material components of the luminaire. It is assumed that 38% of the WEE is recovered for recycling.

C4-Waste disposal
This module relates to waste disposal processes such as landfilling or incineration. It is assumed that 29% of the waste is landfilled and 33% is incinerated.

D-Reuse, recovery, and recycling potential
This module covers benefits and loads associated with recovery/ recycling beyond the defined system boundary for the shower set. This includes benefits from recycling and waste incineration.

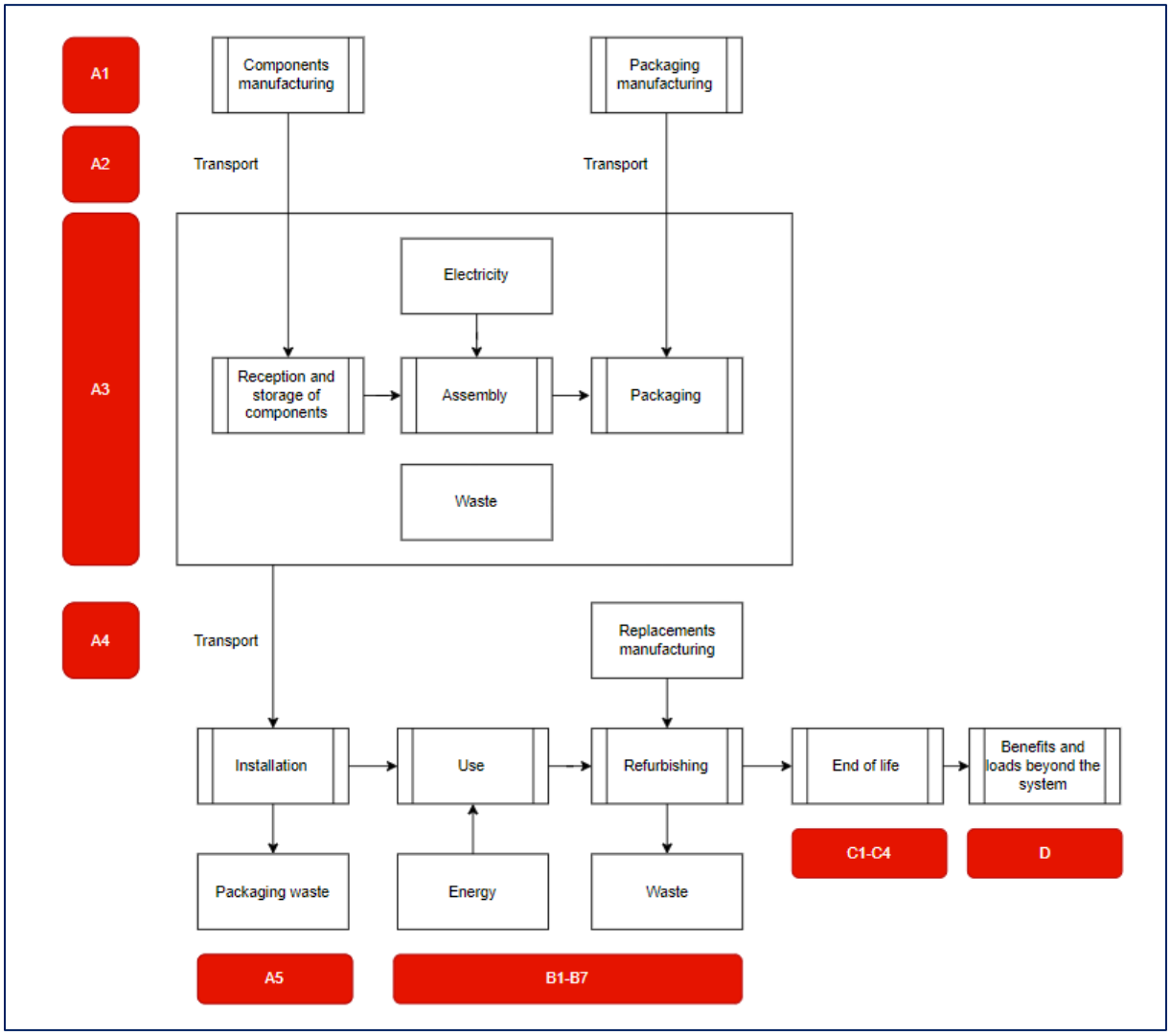
For the modeling of this section, 38% of the mass of the luminaire materials has been incorporated with a negative sign (benefit). This percentage corresponds to the part of waste that goes to recycling, according to Eurostat (Municipal waste landfilled, incinerated, recycled and composted, EU, 1995-2021).

The same approach has been applied to packaging materials (38% of the film and the pallet). The cardboard part of the packaging has not been included because is made of 100% recycled content, therefore it is assumed that the benefits are already included in the system.

To quantify the potential for reuse, recovery and recycling, the same waste treatment scenario as that proposed in stages C3 and C4 has been considered. According to this scenario, the mass of the luminaire with recycling potential is 38.3% of its total weight.

This study includes a cradle-to-grave perspective. That means that all processes needed for raw material extraction, manufacturing, transport, usage and end-of-life are included in the study.

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	GLO	GLO	ES	GLO	GLO	-	-	-	-	EU	EU	-	EU	EU	EU	EU	EU
Specific data used	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	[1]					-	-	-	-	-	-	-	-	-	-		-
Variation – sites	One manufacturing site: 0%					-	-	-	-	-	-	-	-	-	-	-	-

[1] The product's variations of constituent components (versions N, S, M, L) give a variation on environmental impact. The maximum environmental impact is reported as the result

Information additional:

Allocation processes: In this study, there are no co-products in the production of the luminaires. Hence, there is no need for materials allocation. The total amount of operational waste generated in the plant has been allocated based on economic value and production volumes. The allocation to different treatments is based on local (Spain) statistical data. According to PCR 2019:14, the allocation of waste follows the polluter-pays principle. The allocation of waste at the end of life follows the polluter-pays principle and is based on European statistical data.

The allocation of the packaging to the declared unit has been made by dividing the weight of the palet, the cardboard corner pieces and the packaging film, by the number of units of luminaire in one pale.

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. Hence, the instructions paper, the sheet containing the thermal information and the electricity used in the quality tests haven't been considered. 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. Hence

Flows less than 1% of the total inventory were excluded:

- Construction of company plant and processing machinery
- Staff travel and home-work transfers
- Research and development activities
- The materials necessary for cleaning the machinery

Assumptions: In any study of the life cycle there are data that are difficult to obtain and corroborate. These data, necessary for modeling and calculations, are presented as an assumption in the most careful way possible, leaving clearly explicit what are the hypotheses considered, so that they can be easily modified if necessary.

These are the general hypotheses that affect the studied system:

- The electricity is medium voltage electricity corresponding to the Spanish electricity mix of the last year of the Ecoinvent database, v3.8, year 2022.
- It has been considered that all road transport vehicles (trucks of different tonnages) comply with the EURO6 emission limit regulations and the tonnage has been chosen based on the size/weight they transport.
- It has been considered that the waste generated at the plant that is not going to be recycled is treated as inert banal waste (sanitary landfill).

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 requirements to prevent its accounting.

Content information

Product components	Weight	Post-consumer material, weight	Biogenic material, weight	Weight biogenic carbon, kg C/kg
	kg	%	%	kg
Steel	0,12	0	0	0
Aluminium	6,69	0	0	0
Brass	0	0	0	0
Electronic components	1,10	0	0	0
Glass	0,90	0	0	0
Plastic	0,51	0	0	0
Total	9,33	0	0	0

Packaging materials	Weight	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
	kg	%	kg
Cardboard	1,27	13,50%	0,27
Packaging film, low density polyethylene	0	0,05%	-
Wooden EUR-flat pallet	0,83	8,92%	0,42
Total	2,10	-	

1 kg of biogenic carbon is equivalent to 44/12 kg CO2

VEKA luminaires covered by this EPD do not contain Substances of Very High Concern (SVHC) as defined by article 59 (10) of Regulation (CE) n° 1907/2006 (dated 2023-01-17), also known as the REACH candidate list, at a concentration at or above 0.1% in weight.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

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.	4,26E+02	1,91E+00	3,01E-01	0	0	0	0	3,22E+01	4,31E+03	0	1,50E-01	2,38E-01	1,77E+00	1,22E+00	4,81E+01
GWP-biogenic	kg CO_2 eq.	3,80E-01	1,83E-03	6,47E-01	0	0	0	0	1,48E-02	1,44E+02	0	5,58E-05	2,57E-04	5,90E-02	2,37E-03	1,44E+00
GWP- luluc	kg CO_2 eq.	7,81E+00	9,07E-04	3,62E-05	0	0	0	0	2,19E-02	1,02E+01	0	1,48E-05	1,42E-04	4,17E-03	1,49E-04	-2,68E+00
GWP-total	kg CO_2 eq.	4,34E+02	1,91E+00	9,48E-01	0	0	0	0	3,23E+01	4,47E+03	0	1,50E-01	2,38E-01	1,83E+00	1,22E+00	4,69E+01
ODP	kg CFC 11 eq.	3,56E-05	4,30E-07	6,29E-08	0	0	0	0	5,44E-06	2,14E-04	0	3,18E-08	5,20E-08	8,77E-08	2,10E-08	-4,27E-06
AP	mol H^+ eq.	2,41E+00	5,82E-03	1,96E-03	0	0	0	0	2,11E-01	2,32E+01	0	9,93E-04	6,85E-04	9,52E-03	1,09E-03	-5,49E-02
EP-freshwater	kg P eq.	1,21E-01	1,44E-04	1,01E-05	0	0	0	0	1,23E-02	4,31E+00	0	4,61E-06	2,21E-05	1,77E-03	4,97E-05	3,36E-02
EP-marine	kg N eq.	6,23E-01	1,16E-03	9,03E-04	0	0	0	0	2,86E-02	4,02E+00	0	4,19E-04	1,27E-04	1,65E-03	1,80E-03	2,08E-02
EP-terrestrial	mol N eq.	4,21E+00	1,26E-02	8,88E-03	0	0	0	0	3,04E-01	3,51E+01	0	4,60E-03	1,38E-03	1,44E-02	3,76E-03	1,35E-01
POCP	kg NMVOC eq.	2,86E+00	4,70E-03	2,76E-03	0	0	0	0	1,03E-01	9,57E+00	0	1,30E-03	5,33E-04	3,92E-03	1,06E-03	-1,94E-02
ADP-minerals&metals*	kg Sb eq.	6,89E-03	8,70E-06	2,28E-07	0	0	0	0	2,70E-03	1,02E-02	0	7,65E-08	1,48E-06	4,19E-06	3,87E-07	-3,31E-03
ADP-fossil*	MJ	5,14E+03	2,86E+01	4,03E+00	0	0	0	0	4,58E+02	9,23E+04	0	2,04E+00	3,54E+00	3,78E+01	2,18E+00	6,97E+02
WDP*	m^3	1,42E+02	9,45E-02	1,10E-02	0	0	0	0	5,70E+00	1,02E+03	0	3,19E-03	1,37E-02	4,18E-01	4,99E-02	-7,70E+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.

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.	4,33E+02	1,91E+00	3,01E-01	0	0	0	0	3,23E+01	4,32E+03	0	1,50E-01	2,38E-01	1,77E+00	1,22E+00	4,54E+01

The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A2:2019.

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	2,76E+03	4,83E-01	2,22E-02	0,00	0,00	0,00	0,00	1,95E+01	1,64E+04	0,00	1,15E-02	7,53E-02	6,73E+00	9,89E-02	-8,06E+02
PERM	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PERT	MJ	2,76E+03	4,83E-01	2,22E-02	0,00	0,00	0,00	0,00	1,95E+01	1,64E+04	0,00	1,15E-02	7,53E-02	6,73E+00	9,89E-02	-8,06E+02
PENRT	MJ	5,14E+03	2,86E+01	4,03E+00	0,00	0,00	0,00	0,00	4,58E+02	9,22E+04	0,00	2,04E+00	3,54E+00	3,78E+01	2,18E+00	6,97E+02
PENRM	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
PENRE	MJ	5,14E+03	2,86E+01	4,03E+00	0,00	0,00	0,00	0,00	4,58E+02	9,22E+04	0,00	2,04E+00	3,54E+00	3,78E+01	2,18E+00	6,97E+02
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^3	3,15E+01	9,46E-02	1,11E-02	0,00	0,00	0,00	0,00	5,64E+00	1,00E+03	0,00 E+00	3,31E-03	1,37E-02	4,10E-01	5,11E-02	-3,36E+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														

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	6,92E-01	7,62E-05	1,08E-05	0	0	0	0	3,92E-03	3,27E-02	0	5,58E-06	9,80E-06	1,34E-05	3,38E-06	2,26E-02
Non-hazardous waste disposed	kg	1,07E+02	1,21E+00	4,39E-01	0	0	0	0	1,29E+01	3,06E+02	0	2,72E-03	1,16E-01	1,25E-01	2,98E+00	2,79E+01
Radioactive waste disposed	kg	1,14E-02	1,91E-04	2,77E-05	0	0	0	0	2,39E-03	6,81E-01	0	1,41E-05	2,34E-05	2,79E-04	9,59E-06	2,89E-03

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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	1,26E+0	0	1,27E+0	0	0	0	0	6,50E-01	0	0	0	0	0	3,54E+00	0
Materials for energy recovery	kg	1,00E-02	0	2,76E-01	0	0	0	0	5,60E-01	0	0	0	0	0	3,07E+00	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

Interpretation of the environmental performance results

The environmental impact of the luminaire VEKA in a lifecycle perspective, comes mostly from the electricity consumption in the use phase (Module B6) and from the production of raw materials (module A1).

The environmental impact of the electricity is dominated by the environmental effect category “Resource use, fossils”. The source is electricity from the grid in Europe. The environmental impact of the raw materials is dominated by the environmental effect category “Resource use fossils”.

Module A1 Manufacture of components contributes to more than 90% of the impacts in all categories in the Product stage (A1-A3).

The LCA is representative of the VEKA family, that includes sizes VEKA N; VEKA, S, VEKA M, VEKA L. Each size comprises many variations, resulting from the combination of different parameters.

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