Product Environmental Profile

Simon Nath Istanium LED Luminaires

Registration number		SIMO-00001-V01.01-EN		Drafting rules	PCR-ed4-EN-2021 09 14
				Supplemented by	PSR-0014-ed1-0-EN2018 07 18
Verifier accreditation number		VH45		Information and reference documents	www.pep-ecopassport.org
Date of issue		December 2023		Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2006					
Internal		External	X		
The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)					
PEP are complaint with XP CO08-100-1:2016 or EN 50693:2019 The elements of the present PEP cannot be compared with elements from another program.					
Document in compliance with ISO 14025:2006 “Environmental labels and declarations. Type III environmental declarations”					

Company information

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Product description

Simon Nath Istanium LED luminaires are designed for outdoor applications, more specifically for road lighting applications, such as highways, industrial spaces and residential areas among others. This family of luminaires are composed of a die-cast aluminium structure with a lateral/adjustable post-top fastening system, a power supply system, a light source consisting of an integrated LED module and a lighting management system.

Simon Nath luminaires are regulated depending on the necessities of their application. When manufacturing and prior to the installation, these luminaires are programmed to take into consideration the specific characteristics (usual presence of people and hours of brightness during the day depending on the time of the year) of the place of installation in order to reduce or even eliminate their luminosity throughout the day.

The reference product of the family is “Simon Nath Istanium LED S”.

Homogeneous environmental family and reference product

The main technical features of the reference product Simon Nath Istanium LED S luminaire are described below:

Parameter	Simon Nath Istanium LED S
Light source	Integrated LED module
Protection index against water and dust	IP66
Impact resistance index	IK10
Nominal operating voltage	220-240 V
Assigned lifetime	100,000 hours
Lifetime of the light source	100,000 hours
Outgoing luminous flux	6,509 lumens
Electrical power	49 W
Dimensions	570 x 260 x 160 mm

The reference product represents the “Simon Nath” luminaires family, which differs in terms of size, power and luminous flux.

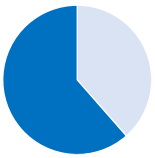
The products assessed have the following characteristics:

Parameter	Simon Nath S	Simon Nath M	Simon Nath L
Dimensions	570 x 260 x 160 mm	685 x 115 x 320 mm	880 x 365 x 155 mm
Electrical power	49 W	97 W	195 W
Outgoing luminous flux	6,509 lumens	13,309 lumens	22,050 lumens
Weight	7.28 kg	10.41 kg	14.09 kg

The present PEP declaration is valid for all the products in the described homogeneous environmental family. The extrapolation-coefficient table provided in section *Extrapolation rules* shall be used to extrapolate the impact of the reference product to other products from the Simon Nath family.

Constituent materials

Simon Nath Istanium LED luminaires are mainly composed of metal, plastic, glass and electronic components. The luminaires are packaged in an individual reinforced cardboard box.

Material		Weight	Percentage
Metals 61.48 % 	Aluminium	4.69 kg	55.54 %
	Steel	0.50 kg	5.94%
Plastics 3.04 % 	Silicone	0.09 kg	1.07 %
	Polymethyl methacrylate	0.06 kg	0.74 %
	Polyamide	0.06 kg	0.74 %
	Polycarbonate	0.04 kg	0.47 %
	Neoprene	< 0.00 kg	0.01 %
Others 21.58 % 	Electronic component	0.74 kg	8.71 %
	Glass	1.03 kg	12.18 %
	Paper	0.01 kg	0.06 %
Packaging 13.90 % 	Cardboard	1.17 kg	13.90 %
	Paper	< 0.00 kg	< 0.00 %
Reference product		7.28 kg	86.10 %
Packaging		1.17 kg	13.90 %
TOTAL		**8.45 kg**	**100 %**

Functional unit

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

The reference flow is calculated as:

(1,000/outgoing luminous flux of the analysed product in lumens) x (35,000/declared product lifetime of the analysed product in hours)

The outgoing luminous flux is calculated taking into account the variation of the lumens due to the light management system during the reference lifetime of the luminaires. The reference flow factor for the reference product Simon Nath S luminaire is:

(1,000/6,509) x (35,000/100,000) = 0.0538

Manufacturing stage

This stage includes the production, industrial transformation, manufacturing processes and transportation of raw materials and components making up the reference product. The components of the product received from suppliers are transformed, assembled, packaged and tested by Simon Lighting in Martorelles (Spain) manufacturing plant. The generated wastes attributed to the manufacturing of the reference product have also been taken into account.

The reference product and other products in this range are installed in concordance to the installation standards, manufacturer´s instruction and professional rules, duly maintained and used for the applications as intended, in conformity with the European Union harmonisation legislation: Directive 2014/35/UE LVD, Directive 2014/30/UE EMC, Directive 2011/65/EU RoHs and Directive 2009/125/CE ErP.

Simon Nath Istanium LED luminaires are in conformity with the following standards: EN 60598-1, EN 60958-2-3 + A1:2011, EN 62262, EN 62493, EN 55015, EN 61547, EN 61000-3-2 + A1 + A2, and EN 50581.

Distribution stage

The products are directly distributed from Simon´s manufacturing plant to the final customers. The distribution scenario comprises the following destinations:

Destination	Percentage (%)	Type of transport
Spain	77.68 %	Intracontinental transport
France	13.61 %	Intracontinental transport
Reunion	4.24 %	Intercontinental transport
Luxembourg	2.03 %	Intracontinental transport
Angola	1.17 %	Intercontinental transport
Saint Pierre and Miquelon	0.92 %	Intercontinental transport
Others	Less than 0.1 %	Intercontinental transport

Installation stage

The luminaires are provided to the client with all the fixing and required elements for installation. The installation phase is done manually and doesn't require electricity consumption. In this stage, the end-of-life of the packaging of the final product is considered.

Use stage

The light source of the luminaires consists of a high-efficiency integrated LED module. The use stage includes the electricity consumption of the reference product during its lifetime. The assigned lifetime for the reference product is 100,000 hours. Simon Nath Istanium LED family luminaires include a programmed lighting management system capable of adjusting their luminosity according to the brightness of the day, the season of the year and the common presence of people where they are installed.

In this stage, despite the fact that the lifetimes of Simon Nath luminaires and of their light source are considered the same (i.e. 100,000 hours), a replacement of the LED module has been included following the average lifetime for this type of light source defined by the PSR and in order to ensure optimal operation during the whole lifetime of Simon Nath luminaires.

End of life stage

Simon Nath luminaires are subject to specific end-of-life treatment obligations regulated by Directive 2012/19/EU. Simon Lighting is affiliated to Ecolum, which is a Spanish organisation authorised for the treatment of WEEE (Waste Electrical and Electronic Equipment). A study by this organization on the components of the reference product has evaluated its recyclability rate in 96.92%, while the percentage of waste-to energy recovery is 1.80% and non-recoverable material in 1.28%.

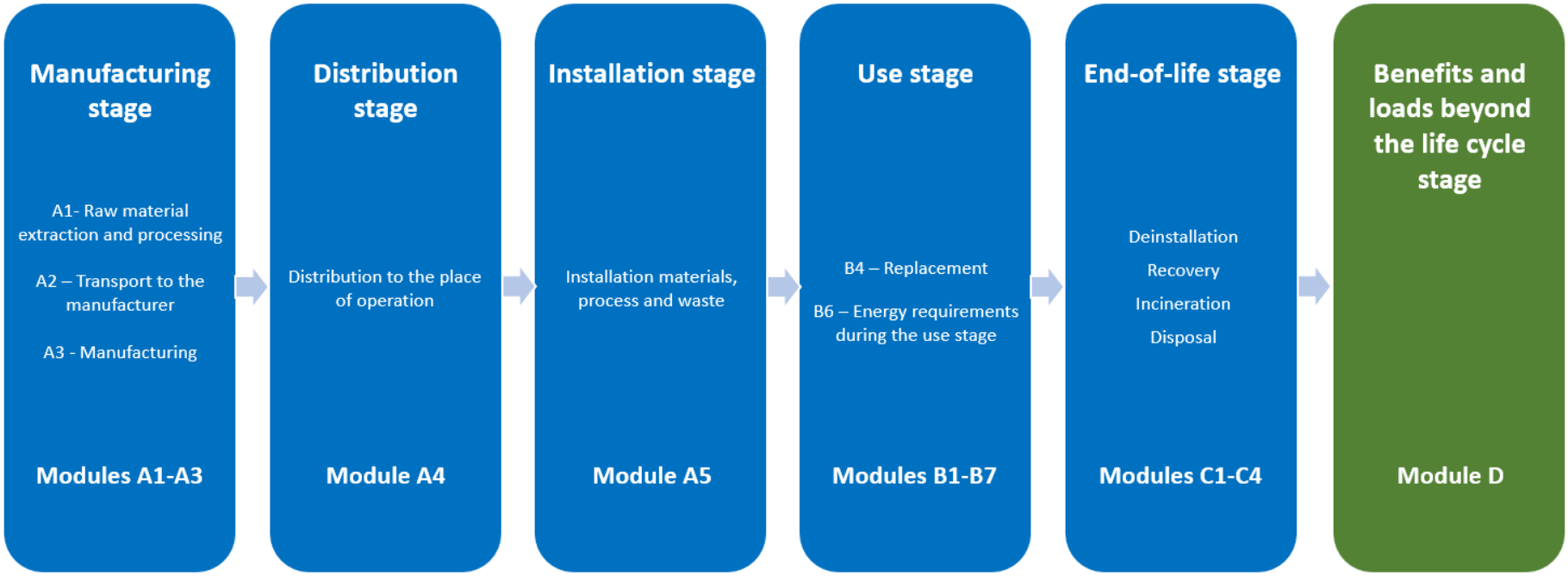
In the case of this EPD and following the rules of the applicable PSR, an end-of-life scenario for each one of the countries to which the reference product is distributed have been taken into account according to the most recent available data. Additionally, a transport process has been included for each one of the country scenarios.

Destination	Percentage of sales (%)	End-of-life scenario *		
		Recycling	Incineration	Landfilling
Spain	77.68 %	53.46 %	2.24 %	44.30 %
France	13.61 %	77.00 %	14.50 %	8.50 %
Reunion	4.24 %	0.00 %	50.00 %	50.00 %
Luxembourg	2.03 %	84.28 %	7.55 %	8.18 %
Angola	1.17 %	0.00 %	50.00 %	50.00 %
Saint Pierre and Miquelon	0.92 %	0.00 %	50.00 %	50.00 %
Others	Less than 0.1 %	1.28%	49.14%	49.58%

* The source of information for the end-of-life scenario has been Eurostat data on waste management of lighting equipment for the European Union clients, data from the PSR for France scenario and for the rest of the countries, where data was missing, the waste scenario from the table of G-4 from the EN 50693 standard has been. The disposal rate of electronic components (PCBs) has been assimilated to the scenario of luminaires, as it is the worst-case-scenario for any type of material in this table.

Environmental impacts

The environmental impacts of the reference product have been evaluated for the five stages described above: manufacturing, distribution, installation, use and end-of-life stages. Additionally, each one of these stages have been divided when required into several modules.



The environmental impact assessment has been carried out with Simapro 9.3.0.3 tool and the background databases have been retrieved from Ecoinvent 3.8 libraries.

Results of mandatory indicators per Functional Unit (1,000 lumens during 35,000 hours) of Simon Nath S luminaire:

Impact category	Unit	A1	A2	A3	Manufacturing (A1-A3)		Distribution (A4)		Installation (A5)		B4	B6	Use (B1-B7)		End of Life (C1-C4)		Benefits (D)
Climate change - Total	kg CO_2 eq.	1.32E+01	7.65E-02	3.14E-03	1.33E+01	18.75%	5.40E-02	0.08%	3.85E-02	0.05%	2.24E-01	5.71E+01	5.73E+01	81.09%	1.53E-02	0.02%	-1.23E+00
Climate change – Fossil	kg CO_2 eq.	1.31E+01	7.65E-02	3.11E-03	1.32E+01	19.33%	5.39E-02	0.08%	1.38E-02	0.02%	2.22E-01	5.47E+01	5.50E+01	80.55%	1.49E-02	0.02%	-1.23E+00
Climate change – Biogenic	kg CO_2 eq.	4.47E-02	8.91E-06	1.89E-05	4.47E-02	2.38%	4.60E-05	0.00%	2.47E-02	1.31%	1.41E-03	1.81E+00	1.81E+00	96.28%	4.75E-04	0.03%	1.19E-02
Climate change - Luluc	kg CO_2 eq.	2.84E-02	5.04E-05	1.30E-05	2.85E-02	4.80%	2.20E-05	0.00%	6.42E-06	0.00%	4.89E-04	5.65E-01	5.65E-01	95.20%	1.31E-06	0.00%	-1.16E-02
Ozone depletion	kg CFC-11 eq.	8.34E-07	1.57E-08	5.86E-10	8.50E-07	18.99%	1.24E-08	0.28%	2.94E-09	0.07%	8.84E-09	3.60E-06	3.61E-06	80.66%	4.30E-10	0.01%	-9.11E-08
Acidification of soil and water	mol H+ eq.	9.35E-02	2.03E-03	1.33E-05	9.55E-02	17.11%	2.91E-04	0.05%	6.35E-05	0.01%	1.43E-03	4.61E-01	4.62E-01	82.81%	5.05E-05	0.01%	-1.13E-02
Freshwater eutrophication	Kg PO_4^{3-} eq.	4.40E-03	1.01E-06	1.05E-07	4.41E-03	36.19%	1.13E-06	0.01%	3.71E-07	0.00%	3.47E-05	7.73E-03	7.77E-03	63.79%	6.29E-08	0.00%	-3.86E-04
Freshwater eutrophication	kg P eq.	1.43E-03	3.28E-07	3.41E-08	1.44E-03	36.19%	3.69E-07	0.01%	1.21E-07	0.00%	1.13E-05	2.52E-03	2.53E-03	63.79%	2.05E-08	0.00%	-1.26E-04
Marine aquatic eutrophication	kg N eq.	1.54E-02	5.02E-04	3.50E-06	1.59E-02	19.34%	8.25E-05	0.10%	2.98E-05	0.04%	2.26E-04	6.59E-02	6.61E-02	80.49%	2.73E-05	0.03%	-1.60E-03
Terrestrial eutrophication	mol N eq.	1.73E-01	5.58E-03	3.90E-05	1.79E-01	19.38%	9.13E-04	0.10%	2.20E-04	0.02%	2.45E-03	7.40E-01	7.43E-01	80.47%	2.45E-04	0.03%	-1.79E-02
Photochemical ozone creation	kg NMVOC eq.	5.12E-02	1.46E-03	1.14E-05	5.27E-02	20.79%	2.69E-04	0.11%	7.23E-05	0.03%	7.46E-04	2.00E-01	2.00E-01	79.05%	7.55E-05	0.03%	-6.14E-03
Depletion of abiotic resources, elements	kg Sb eq.	2.60E-03	1.39E-07	1.32E-08	2.60E-03	79.76%	1.82E-07	0.01%	5.85E-08	0.00%	1.01E-05	6.49E-04	6.59E-04	20.24%	3.85E-09	0.00%	-3.05E-04
Depletion of abiotic resources, fossil fuels	MJ	1.48E+02	1.02E+00	6.55E-02	1.50E+02	9.16%	8.09E-01	0.05%	1.97E-01	0.01%	2.38E+00	1.48E+03	1.48E+03	90.77%	1.09E-01	0.01%	-1.60E+01
Water use	m^3 eq. depriv.	2.76E+00	2.06E-03	1.37E-03	2.76E+00	18.75%	2.38E-03	0.08%	7.66E-04	0.05%	3.27E-02	3.29E+01	3.30E+01	81.09%	7.75E-04	0.02%	-3.65E-01
GWP-GHG	kg CO_2 eq.	1.32E+01	7.65E-02	3.14E-03	1.33E+01	19.33%	5.40E-02	0.08%	2.68E-02	0.02%	2.24E-01	5.58E+01	5.60E+01	80.55%	1.51E-02	0.02%	-1.25E+00

Results of mandatory indicators per Declared unit (6,509 lumens during 100,000 hours) of Simon Nath S luminaire:

Impact category	Unit	A1	A2	A3	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	B4	B6	Use (B1-B7)	End of Life (C1-C4)	Benefits (D)
Climate change - Total	kg CO_2 eq.	2.45E+02	1.42E+00	5.84E-02	2.47E+02	1.00E+00	7.16E-01	4.17E+00	1.06E+03	1.07E+03	2.85E-01	-2.29E+01
Climate change – Fossil	kg CO_2 eq.	2.44E+02	1.42E+00	5.78E-02	2.45E+02	1.00E+00	2.57E-01	4.13E+00	1.02E+03	1.02E+03	2.76E-01	-2.29E+01
Climate change – Biogenic	kg CO_2 eq.	8.31E-01	1.66E-04	3.52E-04	8.32E-01	8.55E-04	4.59E-01	2.63E-02	3.36E+01	3.37E+01	8.84E-03	2.21E-01
Climate change - Luluc	kg CO_2 eq.	5.29E-01	9.37E-04	2.43E-04	5.30E-01	4.10E-04	1.19E-04	9.09E-03	1.05E+01	1.05E+01	2.43E-05	-2.16E-01
Ozone depletion	kg CFC-11 eq.	1.55E-05	2.92E-07	1.09E-08	1.58E-05	2.30E-07	5.46E-08	1.64E-07	6.70E-05	6.71E-05	8.00E-09	-1.69E-06
Acidification of soil and water	mol H+ eq.	1.74E+00	3.77E-02	2.47E-04	1.78E+00	5.42E-03	1.18E-03	2.66E-02	8.57E+00	8.59E+00	9.39E-04	-2.09E-01
Freshwater eutrophication	Kg PO_4^{3-} eq.	8.19E-02	1.87E-05	1.95E-06	8.19E-02	2.11E-05	6.90E-06	6.46E-04	1.44E-01	1.44E-01	1.17E-06	-7.18E-03
Freshwater eutrophication	kg P eq.	2.67E-02	6.10E-06	6.35E-07	2.67E-02	6.86E-06	2.25E-06	2.10E-04	4.68E-02	4.70E-02	3.81E-07	-2.34E-03
Marine aquatic eutrophication	kg N eq.	2.86E-01	9.34E-03	6.51E-05	2.95E-01	1.53E-03	5.54E-04	4.21E-03	1.23E+00	1.23E+00	5.08E-04	-2.98E-02
Terrestrial eutrophication	mol N eq.	3.22E+00	1.04E-01	7.25E-04	3.33E+00	1.70E-02	4.09E-03	4.55E-02	1.38E+01	1.38E+01	4.55E-03	-3.34E-01
Photochemical ozone creation	kg NMVOC eq.	9.53E-01	2.71E-02	2.12E-04	9.80E-01	5.00E-03	1.34E-03	1.39E-02	3.71E+00	3.73E+00	1.40E-03	-1.14E-01
Depletion of abiotic resources, elements	kg Sb eq.	4.83E-02	2.58E-06	2.45E-07	4.83E-02	3.39E-06	1.09E-06	1.88E-04	1.21E-02	1.23E-02	7.16E-08	-5.68E-03
Depletion of abiotic resources, fossil fuels	MJ	2.76E+03	1.89E+01	1.22E+00	2.78E+03	1.50E+01	3.66E+00	4.42E+01	2.75E+04	2.76E+04	2.02E+00	-2.97E+02
Water use	m^3 eq. depriv.	5.13E+01	3.83E-02	2.56E-02	5.14E+01	4.43E-02	1.43E-02	6.09E-01	6.12E+02	6.13E+02	1.44E-02	-6.78E+00
GWP-GHG	kg CO_2 eq.	2.46E+02	1.42E+00	5.82E-02	2.47E+02	1.00E+00	4.99E-01	4.17E+00	1.04E+03	1.04E+03	2.81E-01	-2.33E+01

Results of optional impact indicators per Functional Unit (1,000 lumens during 35,000 hours) of Simon Nath S luminaire:

	Unit	A1	A2	A3	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	B4	B6	Use (B1-B7)	End of Life (C1-C4)	Benefits (D)
PERE	MJ	1.63E+01	8.64E-03	1.26E-02	1.63E+01	1.12E-02	3.79E-03	2.06E-01	3.48E+02	3.48E+02	5.69E-04	-3.86E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.63E+01	8.64E-03	1.26E-02	1.63E+01	1.12E-02	3.79E-03	2.06E-01	3.48E+02	3.48E+02	5.69E-04	-3.86E+00
PENRE	MJ	1.47E+02	1.02E+00	6.55E-02	1.48E+02	8.09E-01	1.97E-01	2.38E+00	1.48E+03	1.48E+03	1.09E-01	-1.60E+01
PENRM	MJ	1.34E+00	0.00E+00	0.00E+00	1.34E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.48E+02	1.02E+00	6.55E-02	1.50E+02	8.09E-01	1.97E-01	2.38E+00	1.48E+03	1.48E+03	1.09E-01	-1.60E+01
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.08E-01	7.21E-05	2.31E-05	1.09E-01	8.85E-05	3.20E-05	1.31E-03	7.72E-01	7.73E-01	2.53E-05	-2.18E-02

Results of optional impact indicators per Declared unit (6,509 lumens during 100,000 hours) of Simon Nath S luminaire:

	Unit	A1	A2	A3	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	B4	B6	Use (B1-B7)	End of Life (C1-C4)	Benefits (D)
PERE	MJ	3.03E+02	1.61E-01	2.34E-01	3.03E+02	2.08E-01	7.04E-02	3.83E+00	6.47E+03	6.47E+03	1.06E-02	-7.18E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	3.03E+02	1.61E-01	2.34E-01	3.03E+02	2.08E-01	7.04E-02	3.83E+00	6.47E+03	6.47E+03	1.06E-02	-7.18E+01
PENRE	MJ	2.74E+03	1.89E+01	1.22E+00	2.76E+03	1.50E+01	3.66E+00	4.42E+01	2.75E+04	2.76E+04	2.02E+00	-2.97E+02
PENRM	MJ	2.50E+01	0.00E+00	0.00E+00	2.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.76E+03	1.89E+01	1.22E+00	2.78E+03	1.50E+01	3.66E+00	4.42E+01	2.75E+04	2.76E+04	2.02E+00	-2.97E+02
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.02E+00	1.34E-03	4.29E-04	2.02E+00	1.65E-03	5.95E-04	2.43E-02	1.43E+01	1.44E+01	4.70E-04	-4.05E-01

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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels

Results of waste impact indicators per Functional Unit (1,000 lumens during 35,000 hours) of Simon Nath S luminaire:

	Unit	A1	A2	A3	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	B4	B6	Use (B1-B7)	End of Life (C1-C4)	Benefits (D)
Hazardous waste disposed	kg	4.14E-04	1.35E-06	1.13E-07	4.16E-04	2.06E-06	5.18E-07	4.18E-06	8.81E-04	8.85E-04	4.87E-08	-3.95E-05
Non-hazardous waste disposed	kg	1.84E+00	1.44E-02	2.09E-02	1.88E+00	4.01E-02	1.49E-02	3.57E-02	5.40E+00	5.43E+00	1.69E-01	-2.55E-01
Radioactive waste disposed	kg	3.58E-04	7.01E-06	4.60E-07	3.65E-04	5.48E-06	1.30E-06	3.92E-06	1.29E-02	1.29E-02	1.87E-07	-5.53E-05
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	1.75E-01	0.00E+00	0.00E+00	1.75E-01	0.00E+00	5.15E-02	0.00E+00	0.00E+00	0.00E+00	2.10E-01	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-03	0.00E+00	0.00E+00	0.00E+00	2.82E-02	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Results of waste impact indicators per Declared unit (6,509 lumens during 100,000 hours) of Simon Nath S luminaire:

	Unit	A1	A2	A3	Manufacturing (A1-A3)	Distribution (A4)	Installation (A5)	B4	B6	Use (B1-B7)	End of Life (C1-C4)	Benefits (D)
Hazardous waste disposed	kg	7.70E-03	2.52E-05	2.11E-06	7.73E-03	3.83E-05	9.63E-06	7.78E-05	1.64E-02	1.65E-02	9.06E-07	-7.34E-04
Non-hazardous waste disposed	kg	3.42E+01	2.68E-01	3.89E-01	3.49E+01	7.45E-01	2.77E-01	6.64E-01	1.00E+02	1.01E+02	3.13E+00	-4.74E+00
Radioactive waste disposed	kg	6.65E-03	1.30E-04	8.55E-06	6.79E-03	1.02E-04	2.42E-05	7.28E-05	2.39E-01	2.39E-01	3.48E-06	-1.03E-03
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	3.26E+00	0.00E+00	0.00E+00	3.26E+00	0.00E+00	9.57E-01	0.00E+00	0.00E+00	0.00E+00	3.91E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-01	0.00E+00	0.00E+00	0.00E+00	5.24E-01	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Results of biogenic carbon per Functional Unit (1,000 lumens during 35,000 hours) of Simon Nath S luminaire:

	Unit	Quantity
Biogenic carbon content of the product	Kg of C	1.41E-04
Biogenic carbon content of the packaging	kg of C	3.16E-02

Results of biogenic carbon per Declared unit (6,509 lumens during 100,000 hours) of Simon Nath S luminaire:

	Unit	Quantity
Biogenic carbon content of the product	Kg of C	2.62E-03
Biogenic carbon content of the packaging	kg of C	5.87E-01

Extrapolation rules

Extrapolations rules have been calculated following the rules described in PCR-ed4-EN-2021 09 14 and PSR-0014-ed1.0- EN-2018 07 18.

The extrapolation coefficients at the functional unit level shall be taken into account with the following formula:

$$Extrapolation\ coefficient\ at\ the\ product\ level\ x\ \frac{Lighting\ output\ of\ reference\ product\ (lumens)}{Lighting\ output\ of\ concerned\ product\ (lumens)}$$

Extrapolation coefficients:

The following extrapolation coefficients are intended at declared unit (product) level and not at the functional unit:

Product name	Manufacturing	Distribution	Installation	Use	End of Life
Simon Nath S*	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**
Simon Nath M	4.57	2.02	1.41	5.33	1.43
Simon Nath L	21.18	3.53	1.82	12.77	1.94

* Reference product.

The following table includes the information of the products of the homogeneous environmental family covered by this study:

Product name	Power (W)	Luminous flux (lumen)	Product weight (kg)	Packaging weight (kg)	Structure weight (kg)	Weight of power equipment (kg)	Weight of light source (kg)	Weight of lighting management system (kg)
Simon Nath S*	**49.00**	**6,509**	**7.28**	**1.17**	**5.98**	**0.94**	**0.19**	**0.17**
Simon Nath M	97.00	13,309	10.41	1.65	8.98	0.75	0.51	0.17
Simon Nath L	195.00	22,050	14.09	2.14	11.55	1.76	0.61	0.17

* Reference product.