

Product Environmental Profile of luminaires for outdoor lighting - iWay Supercomfort family

Reference product: EP00+UH60+UH66



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Independent verification of the declaration and data, in compliance with ISO 14025: 2006

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The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)

PEP are compliant with XP C08-100-1:2016 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»



General information

Company information:

iGuzzini illuminazione S.p.A via Mariano Guzzini, 37 62019, Recanati, Italy

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Reference product:

“iWay EP00+UH60+UH66”

The assessed product range covers outdoor lighting luminaires from the “iWay Supercomfort” family. The luminaires are used for professional lighting of outdoor environments, mainly used for lighting of green areas and pedestrian pathways in public and residential contexts.

The main technical features of the reference product EP00+UH60+UH66 are described in the table below.

Characteristics	Unit	iWay Supercomfort family
Product code	-	EP00+UH60+UH66
Light source	-	Integrated LED module
LED module code	-	1.193.660.01
Power supply	-	OSRAM 20/170-240/1A0
Color temperature	K	3000
Protection index for water and dust (IP)	-	IP66
Impact resistance index (IK)	-	IK10
Nominal operating voltage	V	220-240
Assigned lifetime	Hours	100.000
Declaration lifetime of the LED module	Hours	100.000
Useful output flux	Lumen	231
Electrical power	W	12,3
Luminous efficiency	Lumen/W	18,78
Dimension	mm	170x170x1000

Functional unit:

“Provide lighting 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 analyzed product in lumens) x (35,000/declared product lifetime of the analyzed product in hours):

$$(1.000/231) \times (35.000/100.000) = 1,515$$

Homogeneous environmental family:

The reference product represents the iWay Supercomfort luminaires family, which differs in terms of power and useful output flux (lumen).

The range of variations for the products in the same family is the following:

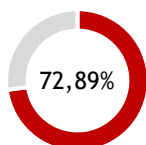
iWay Supercomfort family	Unit	Value for the reference product	Minimum value in product range	Maximum value in product range
Electrical power	W	12,3	12,3	13,1
Useful output flux	Lumen	231	231	714

The present PEP declaration is valid for all the products in the described homogenous environmental family. The spreadsheet provided as annex shall be used by the PEP user to extrapolate the impact of the other products from the iWay Supercomfort family, based on the technical parameters of the considered product, as requested by the PSR.



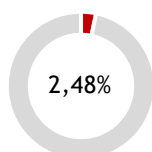
Constituent materials

METALS



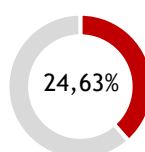
	kg	%
Aluminum	8,995	71,97
Steel	0,113	0,90
Brass	0,001	0,01

PLASTICS



	kg	%
Polycarbonate (PC)	0,230	1,85
Polymethyl methacrylate (PMMA)	0,039	0,31
Silicon	0,031	0,25
Rubber	0,006	0,05
Polyamide (PA)	0,002	0,01
Polyester	0,001	0,01

OTHER MATERIALS



	kg	%
Electronical components	0,463	3,72
Chemicals	0,389	3,13
Paper	0,048	0,38
Cardboard - Packaging	1,464	11,77
Plastic (PE) - Packaging	0,116	0,93
Wood - Packaging	0,585	4,70

Total reference product	10,277	82,60
Total packaging	2,166	17,40
TOTAL	12,442	100%

The list above includes also materials with a certain amount of recycled content, in order to reduce the impacts linked to the production of virgin materials. In particular:

- The paperboard box of packaging is made of 70-100% of recycled content;
- The plastic bag used for packaging is made of 100% of recycled content;
- The aluminum used in housing of EP00 and UH66 is made of 94% of diecast aluminum;
- The aluminum used in housing of UH60 is made of 74% of aluminum;
- The pallet used for shipment is reused.



Manufacture

The product components are manufactured or assembled by iGuzzini S.p.A. in Recanati (Italy) manufacturing site. iGuzzini applies an environmental management system, certified according to ISO 14001:2015 and an energy management system certified according to ISO 50001:2018 (the certificates are available at: <https://www.iguzzini.com/it/certificazioni/>).

In 2023 iGuzzini gained the gold medal in the EcoVadis platform.

In 2022, iGuzzini disclosed its sustainability performances within the Fagerhult Group Sustainability Report. In the same year iGuzzini plant of Recanati passed to 100% green energy procurement verified and certified by GO (origin guarantee certificates).

All lighting products manufactured by iGuzzini comply to the European directive “2011/65/EU ROHS 2 - Restriction of dangerous substances in electrical and electronical equipment”.



Distribution

There is no hub for the distribution. Products leaving the production site in Recanati (MC), Italy, are delivered directly to the final clients. The distribution of the final destinations is the following:

Destination	Share (%)	Type transport considered
England	18%	Intercontinental
United Arab Emirates	16%	Intracontinental
Italy	11%	Local
Poland	11%	Intercontinental
Swiss	7%	Intercontinental
Denmark	7%	Intercontinental
Spain	7%	Intercontinental
France	5%	Intercontinental
German	6%	Intercontinental
Norway	4%	Intercontinental
New Zealand	4%	Intracontinental
Finland	2%	Intercontinental
Sweden	2%	Intercontinental



Installation

The luminaires are provided to the client with the power supply, the fixing elements and the assembly elements, fittings and other electrical connectors needed for installation. Therefore, the installation of the luminaire does not require additional components and the product is easily installed using manual tools. In this phase the end of life (EoL) of the packaging of the final product is considered as well.



Use

Energy efficient light sources (LED lighting) are integrated. The use phase consists of electricity use during the whole lifetime of the product. The assigned lifetime of the luminaire is 100.000 hours.



End of life

The company is affiliated with a WEEE (Waste Electrical and Electronic Equipment) Italian consortium (Ecolight, <https://ecolight.it/>). The product at its end of life is managed as prescribed by the current legislation about EEE waste (Directive 2012/19/EU) and the waste treatment scenarios of the Countries in which the product is distributed. According to the most recent data available, waste treatment scenarios are the following:

Scenario	Recycling	Energy recovery	Incineration	Landfill
England	59%	-	-	41%
United Arab Emirates	6%	-	-	94%
Italy	95%	2%	0%	3%
Poland	23%	-	-	77%
Swiss	34%	-	-	66%
Denmark	59%	-	-	41%
Spain	34%	-	-	66%
France	77%	8,50%	6%	8,50%
German	54%	-	-	46%
Norway	59%	-	-	41%
New Zealand	9%	-	-	91%
Finland	59%	-	-	41%
Sweden	59%	-	-	41%

The end of life scenarios are made with the following assumptions:

- In Italian scenario the transport to the end of life is assumed to be 150 km and the treatment of waste is based on Ecolight statistics;
- In French scenario the transport to the end of life is assumed to be 1000 km and the treatment of waste is based on PSR statistics;
- In other European scenarios the transport to the end of life is assumed to be 1000 km and the treatment of waste is based on Global E-Waste Monitor report;
- For the not-Europeans scenarios the transport to end of life is assumed to be 1000 km and the treatment of waste is based on global statistics.



Environmental impacts

The evaluation of environmental impacts examines the manufacturing, distribution, installation, use and end-of-life stages of the Reference Product life cycle.

The environmental impacts assessment of the reference product has been performed using SimaPro 9.4.0.2 software. Background datasets have been retrieved from Ecoinvent 3.8 libraries. The impact indicators and impact models used are the ones indicated by the PCR-ed4-EN-2021 09 06. This environmental declaration has been developed considering an outgoing artificial luminous flux of 1,000 lumens over a reference lifetime of 35,000 hours (Functional Unit).

Results of mandatory indicators per F.U. (for 1.000 lumens during 35.000 hours) of EP00+UH60+UH66 luminaire:

Impact category	Unit	Total	Manufacturing	Distribution	Installation	Use	EoL
Climate change	kg CO ₂ eq	9,10E+02	1,01E+02	4,04E+01	1,80E+00	7,58E+02	9,08E+00
Ozone depletion	kg CFC-11 eq	6,95E-05	2,20E-05	9,19E-06	5,61E-08	3,80E-05	3,31E-07
Photochemical ozone formation	kg NMVOC eq	2,06E+00	3,09E-01	2,17E-01	1,49E-03	1,52E+00	1,00E-02
Acidification	mol H ⁺ eq	4,26E+00	6,90E-01	2,08E-01	1,12E-03	3,36E+00	7,71E-03
Eutrophication, freshwater	kg P eq	4,98E-01	3,58E-02	6,93E-04	1,73E-05	4,61E-01	1,94E-04
Eutrophication, marine	kg N eq	7,78E-01	1,03E-01	7,59E-02	2,81E-03	5,80E-01	1,71E-02
Eutrophication, terrestrial	mol N eq	7,51E+00	1,03E+00	8,31E-01	3,56E-03	5,61E+00	2,79E-02
Water use	m ³ depriv.	1,81E+02	2,55E+01	5,04E-01	2,09E-02	1,55E+02	1,14E-01
Abiotic resource depletion, fossils	MJ	1,55E+04	1,13E+03	5,69E+02	3,76E+00	1,37E+04	2,24E+01
Abiotic resource depletion, minerals and metals	kg Sb eq	1,18E-02	5,15E-03	2,09E-05	5,70E-07	6,59E-03	3,49E-06
Climate change - Fossil	kg CO ₂ eq	8,83E+02	1,02E+02	4,04E+01	3,04E-01	7,39E+02	1,78E+00
Climate change - Biogenic	kg CO ₂ eq	2,55E+01	-6,33E-01	1,40E-02	1,40E+00	1,78E+01	6,84E+00
Climate change - Land use and LU change	kg CO ₂ eq	1,08E+00	1,32E-01	3,42E-03	9,56E-05	9,49E-01	5,52E-04

Results of mandatory indicators per unit of product (declared unit, 231 lumens during 1000.000 hours) of EP00+UH60+UH66 luminaire:

Impact category	Unit	Total	Manufacturing	Distribution	Installation	Use	EoL
Climate change	kg CO ₂ eq	6,01E+02	6,67E+01	2,67E+01	1,19E+00	5,00E+02	5,99E+00
Ozone depletion	kg CFC-11 eq	4,59E-05	1,45E-05	6,06E-06	3,70E-08	2,50E-05	2,19E-07
Photochemical ozone formation	kg NMVOC eq	1,36E+00	2,04E-01	1,43E-01	9,82E-04	1,00E+00	6,60E-03
Acidification	mol H ⁺ eq	2,81E+00	4,55E-01	1,38E-01	7,39E-04	2,22E+00	5,09E-03
Eutrophication, freshwater	kg P eq	3,29E-01	2,37E-02	4,57E-04	1,14E-05	3,05E-01	1,28E-04
Eutrophication, marine	kg N eq	5,14E-01	6,77E-02	5,01E-02	1,85E-03	3,83E-01	1,13E-02
Eutrophication, terrestrial	mol N eq	4,96E+00	6,83E-01	5,48E-01	2,35E-03	3,70E+00	1,84E-02
Water use	m ³ depriv.	1,19E+02	1,68E+01	3,33E-01	1,38E-02	1,02E+02	7,49E-02
Abiotic resource depletion, fossils	MJ	1,02E+04	7,46E+02	3,75E+02	2,48E+00	9,07E+03	1,48E+01
Abiotic resource depletion, minerals and metals	kg Sb eq	7,76E-03	3,40E-03	1,38E-05	3,76E-07	4,35E-03	2,30E-06
Climate change - Fossil	kg CO ₂ eq	5,83E+02	6,70E+01	2,67E+01	2,00E-01	4,88E+02	1,17E+00
Climate change - Biogenic	kg CO ₂ eq	1,68E+01	-4,18E-01	9,26E-03	9,26E-01	1,18E+01	4,51E+00
Climate change - Land use and LU change	kg CO ₂ eq	7,16E-01	8,70E-02	2,26E-03	6,31E-05	6,26E-01	3,64E-04

Results of mandatory indicators per unit of product (EP00+UH60+UH66 luminaire) - Detail of the use phase with the decomposition of module B (B1-B7) according to EN 15978 and EN 15804:

Impact category	Unit	Total	B1	B2	B3	B4	B5	B6	B7
Climate change	kg CO ₂ eq	5,00E+02	-	-	-	-	-	5,00E+02	-
Ozone depletion	kg CFC-11 eq	2,50E-05	-	-	-	-	-	2,50E-05	-
Photochemical ozone formation	kg NMVOC eq	1,00E+00	-	-	-	-	-	1,00E+00	-
Acidification	mol H ⁺ eq	2,22E+00	-	-	-	-	-	2,22E+00	-
Eutrophication, freshwater	kg P eq	3,05E-01	-	-	-	-	-	3,05E-01	-
Eutrophication, marine	kg N eq	3,83E-01	-	-	-	-	-	3,83E-01	-
Eutrophication, terrestrial	mol N eq	3,70E+00	-	-	-	-	-	3,70E+00	-
Water use	m ³ depriv.	1,02E+02	-	-	-	-	-	1,02E+02	-
Abiotic resource depletion, fossils	MJ	9,07E+03	-	-	-	-	-	9,07E+03	-
Abiotic resource depletion, minerals and metals	kg Sb eq	4,35E-03	-	-	-	-	-	4,35E-03	-
Climate change - Fossil	kg CO ₂ eq	4,88E+02	-	-	-	-	-	4,88E+02	-
Climate change - Biogenic	kg CO ₂ eq	1,18E+01	-	-	-	-	-	1,18E+01	-
Climate change - Land use and LU change	kg CO ₂ eq	6,26E-01	-	-	-	-	-	6,26E-01	-

Within the determination of the impacts of the manufacturing, installation, use and end of life the choice of the dataset relating to electricity consumption fell on low voltage energy (230 V) for all the geographical areas considered in the study. Furthermore, energy mixes were used for each country.

Results of mandatory inventory flow indicators per F.U. (for 1.000 lumens during 35.000 hours) of EP00+UH60+UH66 luminaire:

Indicators	Unit	Value
Renewable primary energy (without raw material)	MJ	3,43E+03
Renewable primary energy (raw material)	MJ	1,10E+02
Total use of renewable primary energy	MJ	3,54E+03
Non renewable primary energy (without raw material)	MJ	1,48E+04
Non renewable primary energy (raw material)	MJ	1,02E+03
Total use of non-renewable primary energy	MJ	1,58E+04
Use of secondary materials	kg	1,28E+01
Use of renewable secondary fuels	MJ	-
Use of non-renewable secondary fuels	MJ	-
Net use of fresh water	m ³	1,85E-02
Hazardous waste disposed	kg	3,42E-02
Non-hazardous waste disposed	kg	1,31E+00
Radioactive waste disposed	kg	-
Components for reuse	kg	8,86E-01
Materials for recycling	kg	*
Materials for energy recovery	kg	*
Exported energy	MJ	-
Biogenic carbon content of the product	kg	7,22E-02
Biogenic carbon content of the associated packaging	kg	9,59E-01

*The use of the symbol * indicates that the value depends on the country where the WEEE is disposed*

Results of mandatory inventory flow indicators per unit of product (declared unit, 231 lumens during 100.000 hours) of EP00+UH60+UH66 luminaire:

Indicators	Unit	Value
Renewable primary energy (without raw material)	MJ	2,26E+03
Renewable primary energy (raw material)	MJ	7,29E+01
Total use of renewable primary energy	MJ	2,34E+03
Non renewable primary energy (without raw material)	MJ	9,77E+03
Non renewable primary energy (raw material)	MJ	6,74E+02
Total use of non-renewable primary energy	MJ	1,04E+04
Use of secondary materials	kg	8,47E+00
Use of renewable secondary fuels	MJ	-
Use of non-renewable secondary fuels	MJ	7,56E+01
Net use of fresh water	m ³	1,22E-02
Hazardous waste disposed	kg	2,26E-02
Non-hazardous waste disposed	kg	8,67E-01
Radioactive waste disposed	kg	-
Components for reuse	kg	5,85E-01
Materials for recycling	kg	*
Materials for energy recovery	kg	*
Exported energy	MJ	-
Biogenic carbon content of the product	kg	4,77E-02
Biogenic carbon content of the associated packaging	kg	6,33E-01

*The use of the symbol * indicates that the value depends on the country where the WEEE is disposed*



Extrapolation rules

Extrapolations rules have been calculated following PCR-ed4-EN-2021 09 06 and PSR-0014-ed1.0-EN-2018 07 18. The defined rules shall be applied using the Extrapolation rules file provided in the following tables.

Parameter	Value for reference product
Lighting output [lumens]	231
Weight of light source [kg]	0,0000216
Weight of luminaire structure and his packaging [kg]	12,23
Weight of power equipment [kg]	0,21
Weight of light management system [kg]	-
Weight of product including its light source (no packaging) [kg]	10,27
Weight of product including its packaging [kg]	12,44
Power [W]	12,3

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

$$\text{Estrapolatuion coefficient at the product level} \times \frac{\text{Lighting output of reference product (lumen)}}{\text{Lighting output of concerned product (lumens)}}$$

Extrapolation coefficients

The reported extrapolation coefficients are intended at product level (declared unit) and not at functional unit.

Product Code	Manufacturing	Distribution	Installation	Use	EoL
EN96+UH57+UH65	0,63	0,627	0,865	1,000	0,576
EN96+UH59+UH65	0,86	0,860	1,061	1,000	0,818
EN97+UH57+UH65	0,63	0,627	0,865	1,065	0,576
EN97+UH59+UH65	0,86	0,860	1,061	1,065	0,818
EN98+UH57+UH65	0,63	0,627	0,865	1,000	0,576
EN98+UH59+UH65	0,86	0,860	1,061	1,000	0,818
EN99+UH57+UH65	0,63	0,627	0,865	1,065	0,576
EN99+UH59+UH65	0,86	0,860	1,061	1,065	0,818
EP00+UH58+UH66	0,76	0,756	0,904	1,000	0,725
EP00+UH60+UH66	1,00	1,000	1,000	1,000	1,000
EP01+UH58+UH66	0,76	0,756	0,904	1,065	0,725
EP01+UH60+UH66	1,00	1,000	1,000	1,065	1,000
EP02+UH58+UH66	0,76	0,756	0,904	1,000	0,725
EP02+UH60+UH66	1,00	1,000	1,000	1,000	1,000
EP03+UH58+UH66	0,76	0,756	0,904	1,065	0,725
EP03+UH60+UH66	1,00	1,000	1,000	1,065	1,000
EN96+EP13	0,43	0,412	0,565	1,000	0,380
EN96+EP15	0,71	0,704	0,817	1,000	0,680
EN96+EP17	0,97	0,973	1,008	1,000	0,966
EN97+EP13	0,43	0,412	0,565	1,065	0,380
EN97+EP15	0,71	0,704	0,817	1,065	0,680
EN97+EP17	0,97	0,973	1,008	1,065	0,966
EN98+EP13	0,43	0,412	0,565	1,000	0,380
EN98+EP15	0,71	0,704	0,817	1,000	0,680
EN98+EP17	0,97	0,973	1,008	1,000	0,966
EN99+EP13	0,43	0,412	0,565	1,065	0,380
EN99+EP15	0,71	0,704	0,817	1,065	0,680
EN99+EP17	0,97	0,973	1,008	1,065	0,966
EP00+EP12	0,48	0,469	0,556	1,000	0,451
EP00+EP14	0,76	0,759	0,825	1,000	0,745
EP00+EP16	1,08	1,078	1,008	1,000	1,093
EP01+EP12	0,48	0,469	0,556	1,065	0,451
EP01+EP14	0,76	0,759	0,825	1,065	0,745
EP01+EP16	1,08	1,078	1,008	1,065	1,093
EP02+EP12	0,48	0,469	0,556	1,000	0,451
EP02+EP14	0,76	0,759	0,825	1,000	0,745
EP02+EP16	1,08	1,078	1,008	1,000	1,093
EP03+EP12	0,48	0,469	0,556	1,065	0,451
EP03+EP14	0,76	0,759	0,825	1,065	0,745
EP03+EP16	1,08	1,078	1,008	1,065	1,093

The following table reports the informations of the products included in the homogeneous environmental family.

Product Code	System power (Watt)	Total weight (Kg)	Structure weight + Packaging weight (Kg)	Power supply weight (Kg)	Lighting Source weight (Kg)	Packaging weight (Kg)	Luminaries weight (Kg)
EN96+UH57+UH65	12,3	7,80	7,59	0,21	0,0000216	1,874	5,923
EN96+UH59+UH65	12,3	10,70	10,49	0,21	0,0000216	2,297	8,406
EN97+UH57+UH65	13,1	7,80	7,59	0,21	0,0000576	1,874	5,923
EN97+UH59+UH65	13,1	10,70	10,49	0,21	0,0000576	2,297	8,406
EN98+UH57+UH65	12,3	7,80	7,59	0,21	0,0000216	1,874	5,923
EN98+UH59+UH65	12,3	10,70	10,49	0,21	0,0000216	2,297	8,406
EN99+UH57+UH65	13,1	7,80	7,59	0,21	0,0000576	1,874	5,923
EN99+UH59+UH65	13,1	10,70	10,49	0,21	0,0000576	2,297	8,406
EP00+UH58+UH66	12,3	9,41	9,20	0,21	0,0000216	1,957	7,455
EP00+UH60+UH66	12,3	12,44	12,23	0,21	0,0000216	2,1655	10,2768
EP01+UH58+UH66	13,1	9,41	9,20	0,21	0,0000576	1,957	7,455
EP01+UH60+UH66	13,1	12,44	12,23	0,21	0,0000576	2,1655	10,2768
EP02+UH58+UH66	12,3	9,41	9,20	0,21	0,0000216	1,957	7,455
EP02+UH60+UH66	12,3	12,44	12,23	0,21	0,0000216	2,1655	10,2768
EP03+UH58+UH66	13,1	9,41	9,20	0,21	0,0000576	1,957	7,455
EP03+UH60+UH66	13,1	12,44	12,23	0,21	0,0000576	2,1655	10,2768
EN96+EP13	12,3	5,13	4,92	0,21	0,0000216	1,223	3,903
EN96+EP15	12,3	8,76	8,55	0,21	0,0000216	1,769	6,99
EN96+EP17	12,3	12,11	11,90	0,21	0,0000216	2,182	9,93
EN97+EP13	13,1	5,13	4,92	0,21	0,0000576	1,223	3,903
EN97+EP15	13,1	8,76	8,55	0,21	0,0000576	1,769	6,99
EN97+EP17	13,1	12,11	11,90	0,21	0,0000576	2,182	9,93
EN98+EP13	12,3	5,13	4,92	0,21	0,0000216	1,223	3,903
EN98+EP15	12,3	8,76	8,55	0,21	0,0000216	1,769	6,99
EN98+EP17	12,3	12,11	11,90	0,21	0,0000216	2,182	9,93
EN99+EP13	13,1	5,13	4,92	0,21	0,0000576	1,223	3,903
EN99+EP15	13,1	8,76	8,55	0,21	0,0000576	1,769	6,99
EN99+EP17	13,1	12,11	11,90	0,21	0,0000576	2,182	9,93
EP00+EP12	12,3	5,84	5,62	0,21	0,0000216	1,204	4,631
EP00+EP14	12,3	9,44	9,23	0,21	0,0000216	1,786	7,653
EP00+EP16	12,3	13,41	13,20	0,21	0,0000216	2,182	11,23
EP01+EP12	13,1	5,84	5,62	0,21	0,0000576	1,204	4,631
EP01+EP14	13,1	9,44	9,23	0,21	0,0000576	1,786	7,653
EP01+EP16	13,1	13,41	13,20	0,21	0,0000576	2,182	11,23
EP02+EP12	12,3	5,84	5,62	0,21	0,0000216	1,204	4,631
EP02+EP14	12,3	9,44	9,23	0,21	0,0000216	1,786	7,653
EP02+EP16	12,3	13,41	13,20	0,21	0,0000216	2,182	11,23
EP03+EP12	13,1	5,84	5,62	0,21	0,0000576	1,204	4,631
EP03+EP14	13,1	9,44	9,23	0,21	0,0000576	1,786	7,653
EP03+EP16	13,1	13,41	13,20	0,21	0,0000576	2,182	11,23