ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Philips MileWide LED gen2 large

BRP436/BPP436
Signify N.V.

EPD HUB
Publishing date 2024-11-06

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Signify N.V.
Address	High Tech Campus 48, 5656 AE Eindhoven, The Netherlands
Contact details	sustainability@signify.com
Website	https://www.signify.com/global

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Electrical product
Category of EPD	Pre-verified EPD
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Sustainability Signify
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☑ Internal certification ☐External verification

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of lighting products may not be comparable if they do not comply with EN 15804 and if they are not compared in a lighting context.

PRODUCT

Product name	Philips MileWide 2 side large
Additional labels	BRP436 LED125-/740 I DM11 SI DDF2 SRG10
Product reference	910770225282
Place of production	Poland
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass	8.741 kg
GWP-fossil, A1-A3 (kgCO2e)	7,39E+01
GWP-total, A1-A3 (kgCO2e)	7,14E+01
Secondary material, inputs (%)	47.9
Secondary material, outputs (%)	60.1
Total energy use, A1-A3 (kWh)	252
Total water use, A1-A3 (m3e)	0.42

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Signify is the world leader in lighting for professionals, consumers and lighting for the Internet of Things. Our energy efficient lighting products, systems and services enable our customers to enjoy a superior quality of light, and make people's lives safer and more comfortable, businesses more productive and cities more liveable.

For more information, please visit: https://www.signify.com/global

PRODUCT DESCRIPTION

Philips MileWide LED Gen2, developed together with Holscher Design, is the latest generation of our highly popular MileWide lighting family that features a range of dedicated masts and brackets. The pure, clean design of MileWide LED Gen2 integrates perfectly with the cityscapes of today and tomorrow. Available in two sizes, BPP435 (small) and BPP436 (large), this MileWide pole light will bring a touch of elegance and fluidity to any urban application (side entry versions: BRP435 and BRP436). Thanks to its advanced LED engine, and use of application-tailored optics, MileWide LED Gen2 delivers outstanding quality of light and light performance, enabling significant energy savings, yet still providing perfectly uniform light on the road. The luminaire is available with one or two Zhaga-D4i (ZD4i) System Ready (SR) sockets, which makes the luminaire future ready. This means MileWide LED Gen2 is ready to pair with advanced controls and lighting software applications such as Interact, or sensors such as the Philips Outdoor Sensor Bundle (OSB). Furthermore, each MileWide LED Gen2 luminaire is uniquely identifiable, thanks to the Signify Service tag app. By simply scanning a QR code, placed inside the door of the mast or directly on the luminaire, you can instantly access the configuration of the luminaire. This makes maintenance and programing operations faster and easier, and enables you to create a digital library of lighting assets and spare parts.

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For more information, please visit
https://www.lighting.philips.com/link/BPP436/fam/aa/en

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	67.71	EUR, ASIA
Minerals	21.94	APAC , EU
Fossil materials	10.35	EUR, ASIA
Bio-based materials	0	Not applicable

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.483

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Product
Mass per declared unit	8.741 kg

Functional unit	1 unit of 8625 lumens over 100000 hours
Reference service life	100000 hours

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	MNR	MNR	MNR	MNR	MNR	x	MNR	MNR	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, electricity, and waste formed in the production processes at Signify's manufacturing facilities are included in this stage.

The product is made of metals, plastics, and electronic components. All components are transported to Signify's production facility, where the main manufacturing processes primarily are associated with assembly. The finished product is packaged with polyethylene, cardboard, and/or paper as packaging material before being sent to customers. Manufacturing loss, ancillaries and wastes are calculated according to the data that each manufacturing site is sharing with Signify. The total annual amount of waste in kg is allocated to the total annual production in kg at the specific manufacturing site responsible for the production of the studied luminaire.

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Thus, it is possible to allocate it according to the weight of the product analysed in this study. Some of the wastes are due to ancillary materials used during manufacturing while the rest is due to material losses.

TRANSPORT AND INSTALLATION (A4-A5)

Transport distances were calculated on the base of the supplier location and manufacturing location and then made a cumulative group choosing the conservative scenario. Environmental impacts from installation include waste packaging materials (A5). The impacts of energy consumption and the used ancillary materials during installation are considered negligible.

PRODUCT USE AND MAINTENANCE (B1-B7)

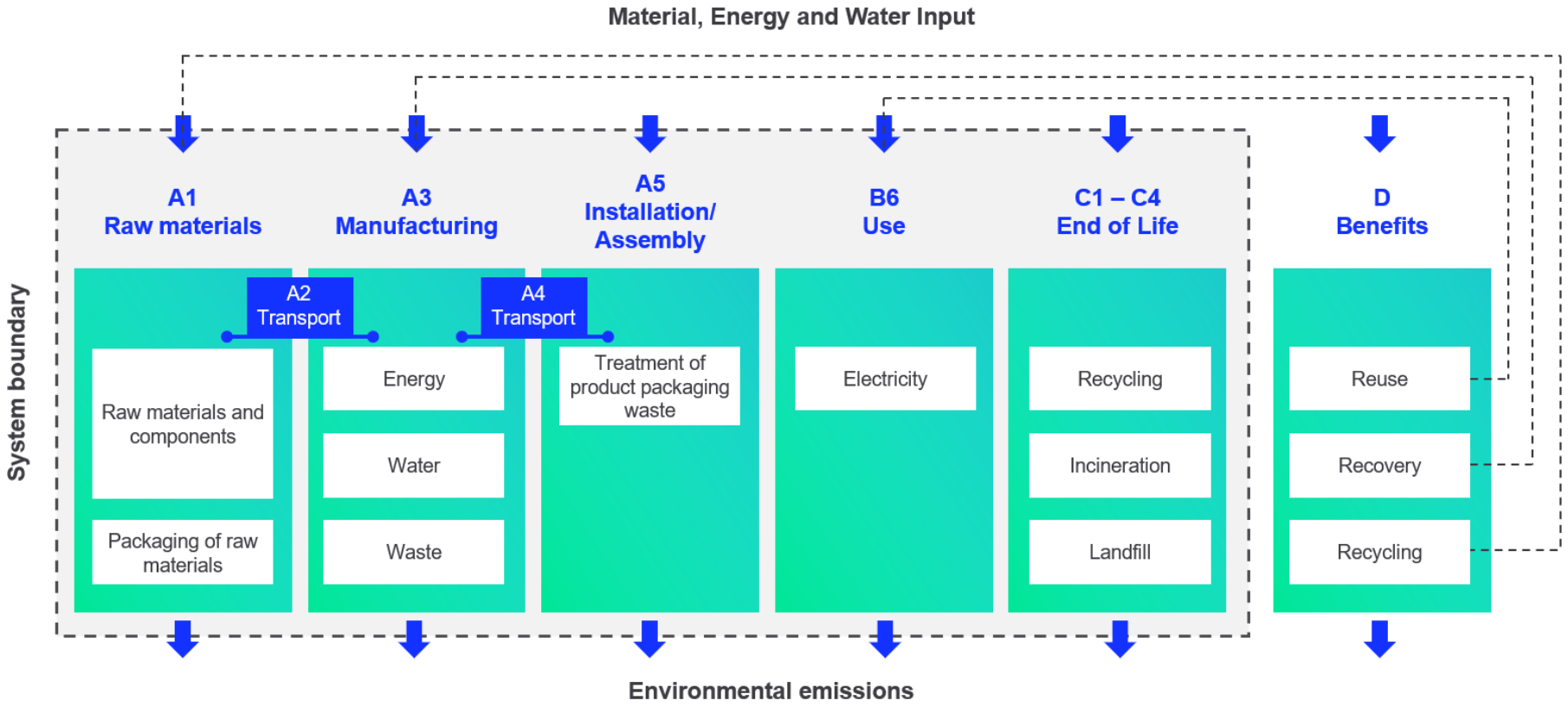
During the use phase, the product consumes electricity from Europe's electricity grid mix (B6). The total power consumption of the reference product is calculated as follows: Wattage x Reference lifetime = kWh consumed throughout the entire use phase B6.

PRODUCT END OF LIFE (C1-C4, D)

Consumption of energy and natural resources in demolition process is assumed to be negligible. It is assumed that the waste is collected separately and transported to the waste treatment centre. Transportation distance to treatment is assumed as 150 km and the transportation method is assumed to be lorry (C2). According to EN 50693:2019, the sequence of treatment operations occurring to the product shall include de-pollution, fractions separation and preparation (dismantling, crushing, shredding, sorting), recycling, other material recovery, energy recovery and disposal. In this study, the default values from table G.4 of EN 50693 is used for treating materials in different waste treatment methods. Due to the material and energy recovery potential of parts in the lighting system, the end-of-life product is converted into recycled raw materials, while the energy recovered from incineration displaces electricity and heat

production (D). The benefits and loads of incineration and recycling are included in Module D.

SYSTEM BOUNDARY



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, ancillary materials, energy & water consumption, material loss and waste generation at the manufacturing site are attributed to the bill of materials of the products, therefore, they are allocated by partitioning the quantities on the base of the total production in kg throughout the year. Thus, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
No allocation	No allocation
No allocation	Allocated by mass or volume
Allocated by mass or volume	Allocated by mass or volume

This EPD is created with a most conservative scenario in A1-A3 in terms of material composition.

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	Not applicable

This EPD is product and factory specific and does not contain average calculations. It is created with a most conservative scenario in A1-A3 in terms of material composition.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. EcoInvent 3.8 database was used as the source of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	6,94E+01	1,87E+00	4,99E-02	7,14E+01	1,87E+00	1,81E+00	MNR	MNR	MNR	MNR	MNR	2,89E+03	MNR	MNR	1,23E-01	7,82E-01	1,36E+00	-1,24E+01
GWP – fossil	kg CO_2e	7,02E+01	1,87E+00	1,79E+00	7,39E+01	1,87E+00	6,74E-02	MNR	MNR	MNR	MNR	MNR	2,88E+03	MNR	MNR	1,23E-01	7,82E-01	4,56E-01	-1,24E+01
GWP – biogenic	kg CO_2e	-9,05E-01	0,00E+00	-1,74E+00	-2,65E+00	7,22E-04	1,74E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	0,00E+00	9,05E-01	-2,38E-03
GWP – LULUC	kg CO_2e	1,13E-01	7,54E-04	7,79E-03	1,22E-01	6,89E-04	1,57E-05	MNR	MNR	MNR	MNR	MNR	6,75E+00	MNR	MNR	4,53E-05	1,64E-04	1,20E-04	-1,35E-03
Ozone depletion pot.	kg CFC_{-11}e	3,45E-06	4,24E-07	2,25E-07	4,10E-06	4,29E-07	4,60E-09	MNR	MNR	MNR	MNR	MNR	1,46E-04	MNR	MNR	2,83E-08	1,34E-08	1,29E-08	-3,38E-07
Acidification potential	mol H^+e	5,21E-01	1,30E-02	7,34E-03	5,41E-01	7,90E-03	3,62E-04	MNR	MNR	MNR	MNR	MNR	1,65E+01	MNR	MNR	5,20E-04	1,39E-03	5,92E-04	-1,37E-01
EP-freshwater[2)]	kg Pe	4,09E-03	1,45E-05	7,42E-05	4,18E-03	1,53E-05	4,81E-07	MNR	MNR	MNR	MNR	MNR	3,06E-01	MNR	MNR	1,01E-06	5,08E-06	5,81E-06	-8,04E-04
EP-marine	kg Ne	7,80E-02	3,56E-03	3,33E-03	8,49E-02	2,35E-03	1,53E-04	MNR	MNR	MNR	MNR	MNR	2,19E+00	MNR	MNR	1,55E-04	3,36E-04	1,19E-03	-1,41E-02
EP-terrestrial	mol Ne	8,30E-01	3,94E-02	2,10E-02	8,90E-01	2,59E-02	1,59E-03	MNR	MNR	MNR	MNR	MNR	2,49E+01	MNR	MNR	1,71E-03	3,78E-03	1,91E-03	-1,65E-01
POCP ("smog")[3)]	kg NMVOCe	2,52E-01	1,16E-02	5,52E-03	2,69E-01	8,29E-03	3,97E-04	MNR	MNR	MNR	MNR	MNR	6,81E+00	MNR	MNR	5,46E-04	1,01E-03	7,21E-04	-4,76E-02
ADP-minerals & metals[4)]	kg Sbe	3,16E-03	4,20E-06	9,30E-06	3,18E-03	4,38E-06	1,52E-07	MNR	MNR	MNR	MNR	MNR	2,69E-02	MNR	MNR	2,88E-07	1,19E-05	2,46E-07	-5,01E-04
ADP-fossil resources	MJ	7,69E+02	2,76E+01	2,45E+01	8,21E+02	2,80E+01	3,58E-01	MNR	MNR	MNR	MNR	MNR	6,14E+04	MNR	MNR	1,85E+00	1,50E+00	1,24E+00	-1,22E+02
Water use[5)]	m^3e depr.	2,31E+01	1,20E-01	6,57E-01	2,39E+01	1,25E-01	8,47E-02	MNR	MNR	MNR	MNR	MNR	1,68E+03	MNR	MNR	8,26E-03	4,97E-02	6,70E-02	-9,15E-01

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	5,32E-06	2,00E-07	1,27E-07	5,65E-06	2,15E-07	3,35E-09	MNR	MNR	MNR	MNR	MNR	5,41E-05	MNR	MNR	1,42E-08	1,76E-08	1,02E-08	-7,15E-07
Ionizing radiation[6)]	kBq U235e	4,07E+00	1,31E-01	6,13E-02	4,26E+00	1,34E-01	1,29E-03	MNR	MNR	MNR	MNR	MNR	1,66E+03	MNR	MNR	8,79E-03	9,00E-03	6,57E-03	-7,30E-01

Ecotoxicity (freshwater)	CTUe	3,32E+03	2,42E+01	6,23E+01	3,40E+03	2,52E+01	2,47E+00	MNR	MNR	MNR	MNR	MNR	4,18E+04	MNR	MNR	1,66E+00	7,47E+00	5,21E+02	-3,33E+02
Human toxicity, cancer	CTUh	1,97E-07	6,68E-10	1,19E-09	1,99E-07	6,20E-10	1,11E-10	MNR	MNR	MNR	MNR	MNR	1,37E-06	MNR	MNR	4,08E-11	2,39E-10	3,44E-10	-2,19E-09
Human tox. non-cancer	CTUh	2,62E-06	2,35E-08	1,97E-08	2,66E-06	2,50E-08	4,65E-09	MNR	MNR	MNR	MNR	MNR	4,49E-05	MNR	MNR	1,64E-09	9,94E-09	1,90E-08	-4,68E-07
SQP[7)]	-	3,46E+02	2,95E+01	4,79E+01	4,23E+02	3,23E+01	1,94E-01	MNR	MNR	MNR	MNR	MNR	1,11E+04	MNR	MNR	2,13E+00	2,62E+00	1,90E+00	-2,83E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	7,79E+01	3,01E-01	1,87E+01	9,69E+01	3,16E-01	1,18E-02	MNR	MNR	MNR	MNR	MNR	1,25E+04	MNR	MNR	2,08E-02	2,07E-01	5,25E-02	-2,31E+00
Renew. PER as material	MJ	9,18E+00	0,00E+00	1,53E+01	2,44E+01	0,00E+00	-1,53E+01	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	-3,31E-01	-8,85E+00	0,00E+00
Total use of renew. PER	MJ	8,71E+01	3,01E-01	3,39E+01	1,21E+02	3,16E-01	-1,53E+01	MNR	MNR	MNR	MNR	MNR	1,25E+04	MNR	MNR	2,08E-02	-1,23E-01	-8,80E+00	-2,31E+00
Non-re. PER as energy	MJ	7,59E+02	2,76E+01	2,32E+01	8,09E+02	2,80E+01	3,58E-01	MNR	MNR	MNR	MNR	MNR	6,13E+04	MNR	MNR	1,85E+00	1,50E+00	1,24E+00	-1,22E+02
Non-re. PER as material	MJ	3,17E+01	0,00E+00	5,76E-01	3,23E+01	0,00E+00	-5,76E-01	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	-1,49E+01	-1,68E+01	1,04E-01
Total use of non-re. PER	MJ	7,90E+02	2,76E+01	2,37E+01	8,42E+02	2,80E+01	-2,18E-01	MNR	MNR	MNR	MNR	MNR	6,13E+04	MNR	MNR	1,85E+00	-1,34E+01	-1,55E+01	-1,22E+02
Secondary materials	kg	4,19E+00	8,07E-03	1,19E+00	5,39E+00	7,79E-03	4,27E-04	MNR	MNR	MNR	MNR	MNR	6,32E+00	MNR	MNR	5,13E-04	1,47E-03	2,96E-03	5,05E-01
Renew. secondary fuels	MJ	1,29E-01	7,38E-05	8,46E-02	2,13E-01	7,86E-05	7,06E-06	MNR	MNR	MNR	MNR	MNR	5,13E-02	MNR	MNR	5,17E-06	7,43E-05	2,32E-05	-5,85E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	3,98E-01	3,43E-03	1,80E-02	4,19E-01	3,63E-03	1,49E-03	MNR	MNR	MNR	MNR	MNR	5,28E+01	MNR	MNR	2,39E-04	1,67E-03	1,02E-03	-4,22E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,16E+01	3,67E-02	8,47E-02	1,17E+01	3,72E-02	3,23E-04	MNR	MNR	MNR	MNR	MNR	2,20E+02	MNR	MNR	2,45E-03	1,03E-02	1,04E-02	-1,96E+00
Non-hazardous waste	kg	1,18E+02	5,77E-01	1,41E+00	1,20E+02	6,11E-01	1,20E+00	MNR	MNR	MNR	MNR	MNR	1,39E+04	MNR	MNR	4,02E-02	6,66E-01	3,48E+00	-3,93E+01
Radioactive waste	kg	1,77E-03	1,86E-04	3,91E-05	1,99E-03	1,88E-04	5,68E-07	MNR	MNR	MNR	MNR	MNR	4,47E-01	MNR	MNR	1,24E-05	6,01E-06	0,00E+00	-2,69E-04

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	4,97E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	2,77E-01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	2,99E-01	2,99E-01	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	6,19E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	6,86E+01	1,85E+00	1,84E+00	7,23E+01	1,85E+00	6,54E-02	MNR	MNR	MNR	MNR	MNR	2,86E+03	MNR	MNR	1,22E-01	7,79E-01	9,07E-01	-1,22E+01
Ozone depletion Pot.	kg CFC_{-11}e	3,00E-06	3,36E-07	1,92E-07	3,53E-06	3,40E-07	4,02E-09	MNR	MNR	MNR	MNR	MNR	1,27E-04	MNR	MNR	2,24E-08	1,10E-08	1,03E-08	-2,87E-07
Acidification	kg SO_2e	4,40E-01	1,02E-02	5,36E-03	4,55E-01	6,14E-03	2,63E-04	MNR	MNR	MNR	MNR	MNR	1,40E+01	MNR	MNR	4,04E-04	1,11E-03	4,60E-04	-1,18E-01
Eutrophication	kg PO_4^3e	1,41E-01	1,78E-03	3,72E-03	1,46E-01	1,40E-03	1,96E-04	MNR	MNR	MNR	MNR	MNR	1,08E+01	MNR	MNR	9,21E-05	3,96E-04	3,59E-03	-3,22E-02
POCP (“smog”)	kg C_2H_4e	2,70E-02	3,37E-04	3,72E-04	2,77E-02	2,40E-04	8,22E-06	MNR	MNR	MNR	MNR	MNR	5,72E-01	MNR	MNR	1,58E-05	4,06E-05	1,32E-04	-5,70E-03
ADP-elements	kg Sbe	3,54E-03	4,08E-06	8,16E-06	3,55E-03	4,24E-06	1,19E-07	MNR	MNR	MNR	MNR	MNR	2,69E-02	MNR	MNR	2,79E-07	1,18E-05	2,30E-07	-4,99E-04
ADP-fossil	MJ	7,91E+02	2,76E+01	2,44E+01	8,42E+02	2,80E+01	3,58E-01	MNR	MNR	MNR	MNR	MNR	6,13E+04	MNR	MNR	1,85E+00	1,50E+00	1,24E+00	-1,22E+02

APPENDIX (EPD HUB ALIGNED)

This section represents the scaling method for the **B6 module**, following the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). The GWP results were scaled from a refernce variant of a product family, based on various light management scenarios and power inputs of the luminaires within the same product familiy

To calculate the Scaled Impact (*SI*), we have followed the below methods:

1. Calculate the power scaling factor (PSF), which is the ratio of the power input of the variant in questions P_{in} and the power input of the base variant P_{base}.

$$PSF = \frac{P_{in}}{P_{base}}$$

2. Calculate the Total Scaling factor by multiplying the PSF by the control scaling factor (CSF), where the CSF is determined according the relevant control factor scenario (e.g. if the luminaire has a presence detection system). The presented controls factors values in Table A1 are based on BS EN 15193-1:2017. Please refer to this publication or contact Signify directly for more information.

$$TSF = PSF * CSF$$

Table A1: Light management function (PEP EcoPassport aligned)

Scenario	Abbrev.	CSF
No control	NC	1
Daylight dependency factor	DD	0.75
Presence sensing	PS	0.75
Daylight dependency and presence sensing	DD+PS	0.55

3. Lastly, the GWP of the base variant is then scaled by the TSF.

$$Scaled\ Impact = GWP_{case} * TSF$$

Table A2 Scaled GWP per scaling factor (EPD Hub aligned)

Configuration	Flux [lm]	Power [W]	Efficacy [lm/W]	PSF	Total Scaling Factor (TSF)				Scaled Impacts (GWP100 B6 - kg CO2eq.)			
					NC	DD	PS	DD+PS	NC	DD	PS	DD+PS
BRP436, BPP436 LED96/740	6624.0	55.0	120.4	0.753	0.753	0.565	0.565	0.414	2176.2	1632.8	1632.8	1196.5
BRP436, BPP436 LED106/740	7245.0	61.0	118.8	0.836	0.836	0.627	0.627	0.46	2416.0	1812.0	1812.0	1329.4
BRP436, BPP436 LED116/740	7935.0	67.0	118.4	0.918	0.918	0.688	0.688	0.505	2653.0	1988.3	1988.3	1459.4
BRP436, BPP436 LED125/740	8625.0	73.0	118.2	1.0	1.0	0.75	0.75	0.55	2890.0	2167.5	2167.5	1589.5
BRP436, BPP436 LED135/740	9315.0	79.0	117.9	1.082	1.082	0.812	0.812	0.595	3127.0	2346.7	2346.7	1719.6
BRP436, BPP436 LED145/740	9860.0	85.0	116.0	1.164	1.164	0.873	0.873	0.64	3364.0	2523.0	2523.0	1849.6
BRP436, BPP436 LED155/740	10540.0	91.0	115.8	1.247	1.247	0.935	0.935	0.686	3603.8	2702.2	2702.2	1982.5
BRP436, BPP436 LED165/740	11220.0	98.0	114.5	1.342	1.342	1.006	1.006	0.738	3878.4	2907.3	2907.3	2132.8
BRP436, BPP436 LED175/740	11725.0	104.0	112.7	1.425	1.425	1.069	1.069	0.784	4118.2	3089.4	3089.4	2265.8
BRP436, BPP436 LED185/740	12395.0	112.0	110.7	1.534	1.534	1.15	1.15	0.844	4433.3	3323.5	3323.5	2439.2
BRP436, BPP436 LED96/730	6624.0	59.0	112.3	0.808	0.808	0.606	0.606	0.444	2335.1	1751.3	1751.3	1283.2
BRP436, BPP436 LED106/730	7245.0	65.0	111.5	0.89	0.89	0.668	0.668	0.49	2572.1	1930.5	1930.5	1416.1

BRP436, BPP436 LED116/730	7935.0	71.0	111.8	0.973	0.973	0.73	0.73	0.535	2812.0	2109.7	2109.7	1546.2
BRP436, BPP436 LED125/730	8625.0	77.0	112.0	1.055	1.055	0.791	0.791	0.58	3049.0	2286.0	2286.0	1676.2
BRP436, BPP436 LED135/730	9180.0	84.0	109.3	1.151	1.151	0.863	0.863	0.633	3326.4	2494.1	2494.1	1829.4
BRP436, BPP436 LED145/730	9860.0	91.0	108.4	1.247	1.247	0.935	0.935	0.686	3603.8	2702.2	2702.2	1982.5
BRP436, BPP436 LED155/730	10540.0	98.0	107.6	1.342	1.342	1.006	1.006	0.738	3878.4	2907.3	2907.3	2132.8
BRP436, BPP436 LED165/730	11055.0	104.0	106.3	1.425	1.425	1.069	1.069	0.784	4118.2	3089.4	3089.4	2265.8
BRP436, BPP436 LED175/730	11725.0	112.0	104.7	1.534	1.534	1.15	1.15	0.844	4433.3	3323.5	3323.5	2439.2
BRP436, BPP436 LED185/730	12395.0	120.0	103.3	1.644	1.644	1.233	1.233	0.904	4751.2	3563.4	3563.4	2612.6
BRP436, BPP436 LED96/727	6624.0	65.0	101.9	0.89	0.89	0.668	0.668	0.49	2572.1	1930.5	1930.5	1416.1
BRP436, BPP436 LED106/727	7140.0	72.0	99.2	0.986	0.986	0.74	0.74	0.542	2849.5	2138.6	2138.6	1566.4
BRP436, BPP436 LED116/727	7820.0	80.0	97.8	1.096	1.096	0.822	0.822	0.603	3167.4	2375.6	2375.6	1742.7
BRP436, BPP436 LED125/727	8375.0	86.0	97.4	1.178	1.178	0.884	0.884	0.648	3404.4	2554.8	2554.8	1872.7
BRP436, BPP436 LED135/727	9045.0	94.0	96.2	1.288	1.288	0.966	0.966	0.708	3722.3	2791.7	2791.7	2046.1
BRP436, BPP436 LED145/727	9715.0	102.0	95.2	1.397	1.397	1.048	1.048	0.768	4037.3	3028.7	3028.7	2219.5
BRP436, BPP436 LED155/727	10385.0	110.0	94.4	1.507	1.507	1.13	1.13	0.829	4355.2	3265.7	3265.7	2395.8
BRP436, BPP436 LED165/727	10890.0	118.0	92.3	1.616	1.616	1.212	1.212	0.889	4670.2	3502.7	3502.7	2569.2
BRP436, BPP436 LED175/727	11375.0	126.0	90.3	1.726	1.726	1.294	1.294	0.949	4988.1	3739.7	3739.7	2742.6
BRP436, BPP436 LED81/830	5658.0	59.0	95.9	0.808	0.808	0.606	0.606	0.444	2335.1	1751.3	1751.3	1283.2
BRP436, BPP436 LED91/830	6348.0	67.0	94.7	0.918	0.918	0.688	0.688	0.505	2653.0	1988.3	1988.3	1459.4
BRP436, BPP436 LED101/830	6900.0	75.0	92.0	1.027	1.027	0.77	0.77	0.565	2968.0	2225.3	2225.3	1632.8
BRP436, BPP436 LED110/830	7590.0	82.0	92.6	1.123	1.123	0.842	0.842	0.618	3245.5	2433.4	2433.4	1786.0
BRP436, BPP436 LED120/830	8160.0	90.0	90.7	1.233	1.233	0.925	0.925	0.678	3563.4	2673.2	2673.2	1959.4
BRP436, BPP436 LED130/830	8710.0	98.0	88.9	1.342	1.342	1.006	1.006	0.738	3878.4	2907.3	2907.3	2132.8
BRP436, BPP436 LED140/830	9380.0	106.0	88.5	1.452	1.452	1.089	1.089	0.799	4196.3	3147.2	3147.2	2309.1
BRP436, BPP436 LED150/830	10050.0	116.0	86.6	1.589	1.589	1.192	1.192	0.874	4592.2	3444.9	3444.9	2525.9

BRP436, BPP436 LED160/830	10720.0	124.0	86.5	1.699	1.699	1.274	1.274	0.934	4910.1	3681.9	3681.9	2699.3
BRP436, BPP436 LED81/840	5658.0	58.0	97.6	0.795	0.795	0.596	0.596	0.437	2297.6	1722.4	1722.4	1262.9
BRP436, BPP436 LED91/840	6348.0	65.0	97.7	0.89	0.89	0.668	0.668	0.49	2572.1	1930.5	1930.5	1416.1
BRP436, BPP436 LED101/840	6900.0	72.0	95.8	0.986	0.986	0.74	0.74	0.542	2849.5	2138.6	2138.6	1566.4
BRP436, BPP436 LED110/840	7590.0	79.0	96.1	1.082	1.082	0.812	0.812	0.595	3127.0	2346.7	2346.7	1719.6
BRP436, BPP436 LED120/840	8160.0	87.0	93.8	1.192	1.192	0.894	0.894	0.656	3444.9	2583.7	2583.7	1895.8
BRP436, BPP436 LED130/840	8840.0	95.0	93.1	1.301	1.301	0.976	0.976	0.716	3759.9	2820.6	2820.6	2069.2
BRP436, BPP436 LED140/840	9380.0	104.0	90.2	1.425	1.425	1.069	1.069	0.784	4118.2	3089.4	3089.4	2265.8
BRP436, BPP436 LED150/840	10050.0	112.0	89.7	1.534	1.534	1.15	1.15	0.844	4433.3	3323.5	3323.5	2439.2
BRP436, BPP436 LED160/840	10720.0	120.0	89.3	1.644	1.644	1.233	1.233	0.904	4751.2	3563.4	3563.4	2612.6
BRP436, BPP436 LED81/722	5658.0	64.0	88.4	0.877	0.877	0.658	0.658	0.482	2534.5	1901.6	1901.6	1393.0
BRP436, BPP436 LED91/722	6348.0	72.0	88.2	0.986	0.986	0.74	0.74	0.542	2849.5	2138.6	2138.6	1566.4
BRP436, BPP436 LED101/722	6900.0	81.0	85.2	1.11	1.11	0.832	0.832	0.611	3207.9	2404.5	2404.5	1765.8
BRP436, BPP436 LED110/722	7480.0	89.0	84.0	1.219	1.219	0.914	0.914	0.67	3522.9	2641.5	2641.5	1936.3
BRP436, BPP436 LED120/722	8160.0	97.0	84.1	1.329	1.329	0.997	0.997	0.731	3840.8	2881.3	2881.3	2112.6
BRP436, BPP436 LED130/722	8710.0	106.0	82.2	1.452	1.452	1.089	1.089	0.799	4196.3	3147.2	3147.2	2309.1
BRP436, BPP436 LED140/722	9380.0	116.0	80.9	1.589	1.589	1.192	1.192	0.874	4592.2	3444.9	3444.9	2525.9
BRP436, BPP436 LED150/722	9900.0	126.0	78.6	1.726	1.726	1.294	1.294	0.949	4988.1	3739.7	3739.7	2742.6
BRP436, BPP436 LED81/827	5658.0	64.0	88.4	0.877	0.877	0.658	0.658	0.482	2534.5	1901.6	1901.6	1393.0
BRP436, BPP436 LED91/827	6348.0	72.0	88.2	0.986	0.986	0.74	0.74	0.542	2849.5	2138.6	2138.6	1566.4
BRP436, BPP436 LED101/827	6900.0	81.0	85.2	1.11	1.11	0.832	0.832	0.611	3207.9	2404.5	2404.5	1765.8
BRP436, BPP436 LED110/827	7480.0	89.0	84.0	1.219	1.219	0.914	0.914	0.67	3522.9	2641.5	2641.5	1936.3
BRP436, BPP436 LED120/827	8160.0	97.0	84.1	1.329	1.329	0.997	0.997	0.731	3840.8	2881.3	2881.3	2112.6
BRP436, BPP436 LED130/827	8710.0	106.0	82.2	1.452	1.452	1.089	1.089	0.799	4196.3	3147.2	3147.2	2309.1
BRP436, BPP436 LED140/827	9380.0	116.0	80.9	1.589	1.589	1.192	1.192	0.874	4592.2	3444.9	3444.9	2525.9

** Note that if the product is non-dimmable, only the values for "NC (No Control)" are valid; if the driver type is PSU, only the values for "NC (No Control)"and "PS (presence sensing)" for are valid.*

APPENDIX (PEP ECOPASSPORT ALIGNED)

This section represents the scaling method for the **B6 module**, following the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). The GWP results were scaled from a refernce variant of a product family, based on various light management functions, the lumen output (O_{lum}) and reference service life (*RSL*) of each product within the same product familiy.

To calculate the Scaled Impact (SI_{pep}), we have followed the below methods:

1. Calculate the power scaling factor (PSF), which is the ratio of the power input of the variant in questions P_{in} and the power input of the base variant P_{base}.

$$PSF = \frac{P_{in}}{P_{base}}$$

2. Using this scaled GWP, we then can apply the PEP Ecopassport method for calculating the environmental impact of the functional unit for a luminary (1000 lumens over 35000 hours), applied to B6, where the Functional Unit application considers the lumen output (Olum) and reference service lifetime (RSL) of the product to estimate the final environmental impact. The scaled impact (SIpep) is presented in Table A4.

$$GSF = \frac{FU_{pep}}{FU_p} = \frac{1{,}000}{O_{lum}} * \frac{35{,}000}{RSL}$$

3. Calculate the GWP scaling factor (P*GSF*), by multiplying the PSF by the GSF.

$$PGSF = PSF * GSF$$

4. Calculate the Total Scaling factor by multiplying the PSF by the control scaling factor (CSF), where the CSF is determined according the relevant control factor scenario (e.g. if the luminaire has a presence detection system), as presented in Table A1.

$$TSF = PGSF * CSF$$

Table A3: Light management functions (PEP EcoPassport aligned)

Scenario	Abbrev.	CSF
No control	NC	1
Daylight dependency factor	DD	0.75
Presence sensing	PS	0.75
Daylight dependency and presence sensing	DD+PS	0.55

5. Lastly, the GWP of the base variant is then scaled by the TSF.

$$Scaled\ GWP = GWP_{\ case} * TSF$$

As described in the EPD, calculations are made based on dataset describing electricity available on the low voltage level in Europe for year 2022 (source Ecoinvent 3.8 database). This value should be adjusted depending on specific project requirements. Presented controls factors and functional unit conversion values are based on the PEP EcoPassport PSR for luminaries (PSR-0014-ed2.0-EN-2023 07 13). Please refer to this publication or contact Signify directly for more information.

Table A4 Scale impact per scaling factor (PEP EcoPassport aligned)

Configuration	Flux [lm]	Power [W]	Efficacy [lm/W]	PSF	Total Scaling Factor (TSF)				Scaled Impacts (GWP100 B6 - kg CO2eq.)			
					NC	DD	PS	DD+PS	NC	DD	PS	DD+PS
BRP436, BPP436 LED96/740	6624.0	55.0	120.4	0.753	0.04	0.03	0.03	0.022	115.6	86.7	86.7	63.6
BRP436, BPP436 LED106/740	7245.0	61.0	118.8	0.836	0.04	0.03	0.03	0.022	115.6	86.7	86.7	63.6
BRP436, BPP436 LED116/740	7935.0	67.0	118.4	0.918	0.04	0.03	0.03	0.022	115.6	86.7	86.7	63.6
BRP436, BPP436 LED125/740	8625.0	73.0	118.2	1.0	0.041	0.031	0.031	0.023	118.5	89.6	89.6	66.5
BRP436, BPP436 LED135/740	9315.0	79.0	117.9	1.082	0.041	0.031	0.031	0.023	118.5	89.6	89.6	66.5
BRP436, BPP436 LED145/740	9860.0	85.0	116.0	1.164	0.041	0.031	0.031	0.023	118.5	89.6	89.6	66.5
BRP436, BPP436 LED155/740	10540.0	91.0	115.8	1.247	0.041	0.031	0.031	0.023	118.5	89.6	89.6	66.5
BRP436, BPP436 LED165/740	11220.0	98.0	114.5	1.342	0.042	0.032	0.032	0.023	121.4	92.5	92.5	66.5
BRP436, BPP436 LED175/740	11725.0	104.0	112.7	1.425	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED185/740	12395.0	112.0	110.7	1.534	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED96/730	6624.0	59.0	112.3	0.808	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED106/730	7245.0	65.0	111.5	0.89	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED116/730	7935.0	71.0	111.8	0.973	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED125/730	8625.0	77.0	112.0	1.055	0.043	0.032	0.032	0.024	124.3	92.5	92.5	69.4
BRP436, BPP436 LED135/730	9180.0	84.0	109.3	1.151	0.044	0.033	0.033	0.024	127.2	95.4	95.4	69.4
BRP436, BPP436 LED145/730	9860.0	91.0	108.4	1.247	0.044	0.033	0.033	0.024	127.2	95.4	95.4	69.4

BRP436, BPP436 LED155/730	10540.0	98.0	107.6	1.342	0.045	0.034	0.034	0.025	130.0	98.3	98.3	72.2
BRP436, BPP436 LED165/730	11055.0	104.0	106.3	1.425	0.045	0.034	0.034	0.025	130.0	98.3	98.3	72.2
BRP436, BPP436 LED175/730	11725.0	112.0	104.7	1.534	0.046	0.034	0.034	0.025	132.9	98.3	98.3	72.2
BRP436, BPP436 LED185/730	12395.0	120.0	103.3	1.644	0.046	0.034	0.034	0.025	132.9	98.3	98.3	72.2
BRP436, BPP436 LED96/727	6624.0	65.0	101.9	0.89	0.047	0.035	0.035	0.026	135.8	101.2	101.2	75.1
BRP436, BPP436 LED106/727	7140.0	72.0	99.2	0.986	0.048	0.036	0.036	0.026	138.7	104.0	104.0	75.1
BRP436, BPP436 LED116/727	7820.0	80.0	97.8	1.096	0.049	0.037	0.037	0.027	141.6	106.9	106.9	78.0
BRP436, BPP436 LED125/727	8375.0	86.0	97.4	1.178	0.049	0.037	0.037	0.027	141.6	106.9	106.9	78.0
BRP436, BPP436 LED135/727	9045.0	94.0	96.2	1.288	0.05	0.038	0.038	0.028	144.5	109.8	109.8	80.9
BRP436, BPP436 LED145/727	9715.0	102.0	95.2	1.397	0.05	0.038	0.038	0.028	144.5	109.8	109.8	80.9
BRP436, BPP436 LED155/727	10385.0	110.0	94.4	1.507	0.051	0.038	0.038	0.028	147.4	109.8	109.8	80.9
BRP436, BPP436 LED165/727	10890.0	118.0	92.3	1.616	0.052	0.039	0.039	0.029	150.3	112.7	112.7	83.8
BRP436, BPP436 LED175/727	11375.0	126.0	90.3	1.726	0.053	0.04	0.04	0.029	153.2	115.6	115.6	83.8
BRP436, BPP436 LED81/830	5658.0	59.0	95.9	0.808	0.05	0.038	0.038	0.028	144.5	109.8	109.8	80.9
BRP436, BPP436 LED91/830	6348.0	67.0	94.7	0.918	0.051	0.038	0.038	0.028	147.4	109.8	109.8	80.9
BRP436, BPP436 LED101/830	6900.0	75.0	92.0	1.027	0.052	0.039	0.039	0.029	150.3	112.7	112.7	83.8
BRP436, BPP436 LED110/830	7590.0	82.0	92.6	1.123	0.052	0.039	0.039	0.029	150.3	112.7	112.7	83.8
BRP436, BPP436 LED120/830	8160.0	90.0	90.7	1.233	0.053	0.04	0.04	0.029	153.2	115.6	115.6	83.8
BRP436, BPP436 LED130/830	8710.0	98.0	88.9	1.342	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED140/830	9380.0	106.0	88.5	1.452	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED150/830	10050.0	116.0	86.6	1.589	0.055	0.041	0.041	0.03	159.0	118.5	118.5	86.7
BRP436, BPP436 LED160/830	10720.0	124.0	86.5	1.699	0.055	0.041	0.041	0.03	159.0	118.5	118.5	86.7
BRP436, BPP436 LED81/840	5658.0	58.0	97.6	0.795	0.049	0.037	0.037	0.027	141.6	106.9	106.9	78.0
BRP436, BPP436 LED91/840	6348.0	65.0	97.7	0.89	0.049	0.037	0.037	0.027	141.6	106.9	106.9	78.0
BRP436, BPP436 LED101/840	6900.0	72.0	95.8	0.986	0.05	0.038	0.038	0.028	144.5	109.8	109.8	80.9

BRP436, BPP436 LED110/840	7590.0	79.0	96.1	1.082	0.05	0.038	0.038	0.028	144.5	109.8	109.8	80.9
BRP436, BPP436 LED120/840	8160.0	87.0	93.8	1.192	0.051	0.038	0.038	0.028	147.4	109.8	109.8	80.9
BRP436, BPP436 LED130/840	8840.0	95.0	93.1	1.301	0.052	0.039	0.039	0.029	150.3	112.7	112.7	83.8
BRP436, BPP436 LED140/840	9380.0	104.0	90.2	1.425	0.053	0.04	0.04	0.029	153.2	115.6	115.6	83.8
BRP436, BPP436 LED150/840	10050.0	112.0	89.7	1.534	0.053	0.04	0.04	0.029	153.2	115.6	115.6	83.8
BRP436, BPP436 LED160/840	10720.0	120.0	89.3	1.644	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED81/722	5658.0	64.0	88.4	0.877	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED91/722	6348.0	72.0	88.2	0.986	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED101/722	6900.0	81.0	85.2	1.11	0.056	0.042	0.042	0.031	161.8	121.4	121.4	89.6
BRP436, BPP436 LED110/722	7480.0	89.0	84.0	1.219	0.057	0.043	0.043	0.031	164.7	124.3	124.3	89.6
BRP436, BPP436 LED120/722	8160.0	97.0	84.1	1.329	0.057	0.043	0.043	0.031	164.7	124.3	124.3	89.6
BRP436, BPP436 LED130/722	8710.0	106.0	82.2	1.452	0.058	0.044	0.044	0.032	167.6	127.2	127.2	92.5
BRP436, BPP436 LED140/722	9380.0	116.0	80.9	1.589	0.059	0.044	0.044	0.032	170.5	127.2	127.2	92.5
BRP436, BPP436 LED150/722	9900.0	126.0	78.6	1.726	0.061	0.046	0.046	0.034	176.3	132.9	132.9	98.3
BRP436, BPP436 LED81/827	5658.0	64.0	88.4	0.877	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED91/827	6348.0	72.0	88.2	0.986	0.054	0.04	0.04	0.03	156.1	115.6	115.6	86.7
BRP436, BPP436 LED101/827	6900.0	81.0	85.2	1.11	0.056	0.042	0.042	0.031	161.8	121.4	121.4	89.6
BRP436, BPP436 LED110/827	7480.0	89.0	84.0	1.219	0.057	0.043	0.043	0.031	164.7	124.3	124.3	89.6
BRP436, BPP436 LED120/827	8160.0	97.0	84.1	1.329	0.057	0.043	0.043	0.031	164.7	124.3	124.3	89.6
BRP436, BPP436 LED130/827	8710.0	106.0	82.2	1.452	0.058	0.044	0.044	0.032	167.6	127.2	127.2	92.5
BRP436, BPP436 LED140/827	9380.0	116.0	80.9	1.589	0.059	0.044	0.044	0.032	170.5	127.2	127.2	92.5

** Note that if the product is non-dimmable, only the values for "NC (No Control)" are valid; if the driver type is PSU, only the values for "NC (No Control)"and "PS (presence sensing)" for are valid.*

ANNEX

USE PHASE (B6) VALUES FOR DIFFERENT COUNTRY MIX

The table in this annex is useful for conversion and comparison of B6 values with other energy country mix. The Global Warming Potential Total (GWP tot) value is illustrated for each country. The value refers to 1 kwh.

Example on how to use the table:

This EPD was done according to a specific customer use location that can be read in the paragraph **PRODUCT USE AND MAINTENANCE (B1-B7).**

If for example the EPD was done according to EU energy mix and you want to see how the GWP total changes according to a Finland country energy mix, you can take the original value in the results table here highlighed in yellow:

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO2e	5,88E+00	2,61E-01	-1,25E-01	6,02E+00	3,02E-01	5,41E-01	MND	MND	MND	MND	MND	4,06E+02	MND	MNR	1,77E-02	2,62E-01	1,88E-01	-1,09E+01

Divide that value according to the EU value from the following table (EU = 3,96E-01) and then multilplying for the Finland value from the same table (FINLAND = 2,70E-01).

Thus, the calculation of this example would be:

New B6 GWP tot for Finland = (4,06E+02 / 3,96E-01) x 2,70E-01 = 2,76 E+02

Country	GWP tot (kg CO2 eq. per kwh)
AUSTRALIA	9,59E-01
AUSTRIA	3,37E-01
BELGIUM	2,63E-01
CHINA	1,14E+00
DENMARK	2,91E-01
EU	3,96E-01
FINLAND	2,70E-01
FRANCE	8,77E-02
GERMANY	5,32E-01
HUNGARY	4,67E-01
IRELAND	4,26E-01
ITALY	3,94E-01
LATAM	3,50E-01
NAM	4,83E-01
NETHERLANDS	5,88E-01
NORWAY	2,59E-02
POLAND	1,05E+00

PORTUGAL	4,22E-01
ROW	7,32E-01
SPAIN	3,34E-01
SWEDEN	4,95E-02
SWITZERLAND	5,38E-02
UK	3,17E-01

Source Ecoinvent 3.8