

ENVIRONMENTAL PRODUCT DECLARATION

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

Philips UrbanFlex

BGP/BPP/BRP/BVP729

Signify N.V.



EPD HUB

Publishing date 2024-10-22

 Signify

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: <input checked="" type="checkbox"/> Internal certification <input type="checkbox"/> 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 UrbanFlex micro
Additional labels	BPP729 LED30-4S/740 II PSD D9 DM11 FG DG
Product reference	912300060118
Place of production	Spain
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	5.68 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	5,82E+01
GWP-total, A1-A3 (kgCO ₂ e)	5,37E+01
Secondary material, inputs (%)	52.5
Secondary material, outputs (%)	60.6
Total energy use, A1-A3 (kWh)	205
Total water use, A1-A3 (m ³ e)	0.38

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

Cities want to be attractive, welcoming, and safe places where residents thrive, businesses prosper, and people love to visit. It’s the reason we designed Philips UrbanFlex - a flexible street lighting solution for all types of urban applications. UrbanFlex is designed for customers looking for ways to achieve uniformity in design and quality of light with elegant, energy efficient and sustainable products. The UrbanFlex signature style is modern and flawless to give your cityscape a visually coherent, elegant and distinctive identity. Available in two popular sizes, it also comes with a range of mountings and dedicated brackets and poles. And because we’re conscious about the impact of light on the environment and biodiversity, we have also equipped UrbanFlex with our dedicated light recipe to preserve dark skies. Thanks to the built in Philips LEDGINE-O platform, and the wide range of application-tailored optics, UrbanFlex delivers best-in-class performance in a broad range of city lighting applications. By being System Ready, this luminaire offers connectivity and dimming options, while it can be paired with lighting management systems like Interact, and any existing and upcoming sensors innovations. In addition, every UrbanFlex luminaire is uniquely identifiable, thanks to the Signify Service tag app, making maintenance and programming operations faster and easier, and enabling you to create a digital library of lighting assets and spare parts.

Philips UrbanFlex micro-BGP/BPP/BRP/BVP729

For more information, please visit

<https://www.lighting.philips.com/link/BGP729/fam/aa/en>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	74.09	EUR, ASIA
Minerals	9.88	EU
Fossil materials	16.03	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	1.233

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Product
Mass per declared unit	5.68 kg
Functional unit	1 unit of 2700 lumens over 100000 hours

Reference service life	100000 hours
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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)

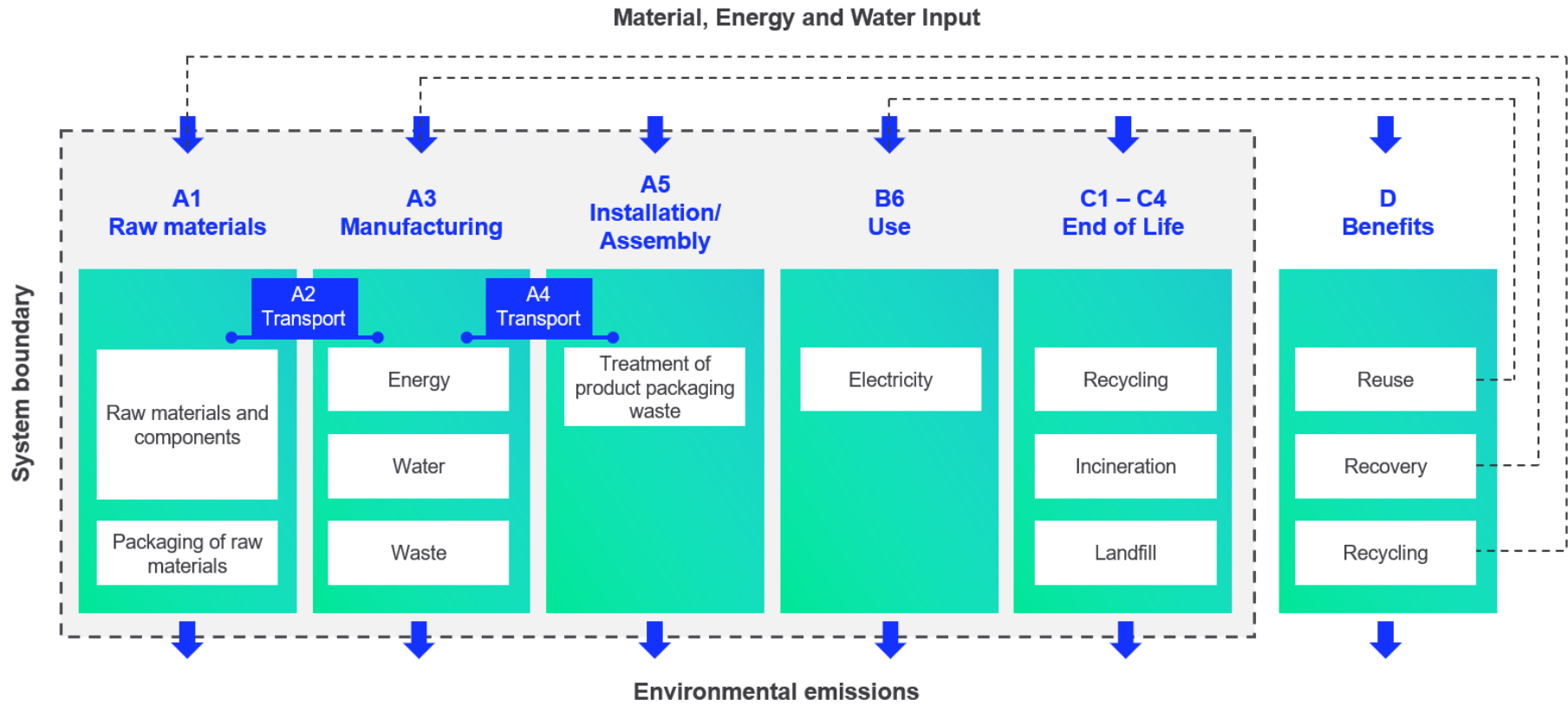
During the use phase, the product consumes electricity from Europe's electricity grid mix (B6). The total power consumption of the reference product is calculated as follows: Wattage x Reference lifetime = kWh consumed throughout the entire use phase B6.

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 ₂ e	5,29E+01	1,65E+00	-9,07E-01	5,37E+01	1,65E+00	4,67E+00	MNR	MNR	MNR	MNR	MNR	7,37E+02	MNR	MNR	7,98E-02	4,91E-01	5,78E-01	-1,09E+01
GWP – fossil	kg CO ₂ e	5,30E+01	1,65E+00	3,52E+00	5,82E+01	1,65E+00	2,24E-01	MNR	MNR	MNR	MNR	MNR	7,35E+02	MNR	MNR	7,97E-02	4,90E-01	3,98E-01	-1,09E+01
GWP – biogenic	kg CO ₂ e	-1,68E-01	0,00E+00	-4,45E+00	-4,62E+00	6,38E-04	4,45E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	0,00E+00	1,80E-01	-1,99E-03
GWP – LULUC	kg CO ₂ e	8,96E-02	6,24E-04	1,96E-02	1,10E-01	6,08E-04	4,01E-05	MNR	MNR	MNR	MNR	MNR	1,72E+00	MNR	MNR	2,94E-05	1,29E-04	7,51E-05	-1,25E-03
Ozone depletion pot.	kg CFC ₁₁ e	3,32E-06	3,78E-07	3,62E-07	4,06E-06	3,79E-07	1,18E-08	MNR	MNR	MNR	MNR	MNR	3,73E-05	MNR	MNR	1,83E-08	9,71E-09	8,06E-09	-2,99E-07
Acidification potential	mol H ⁺ e	3,58E-01	8,20E-03	1,72E-02	3,84E-01	6,98E-03	9,32E-04	MNR	MNR	MNR	MNR	MNR	4,20E+00	MNR	MNR	3,38E-04	1,04E-03	3,80E-04	-1,30E-01
EP-freshwater ²⁾	kg Pe	2,96E-03	1,33E-05	1,89E-04	3,16E-03	1,35E-05	1,23E-06	MNR	MNR	MNR	MNR	MNR	7,79E-02	MNR	MNR	6,53E-07	4,08E-06	3,19E-06	-7,30E-04
EP-marine	kg Ne	5,61E-02	2,37E-03	8,13E-03	6,66E-02	2,07E-03	3,96E-04	MNR	MNR	MNR	MNR	MNR	5,57E-01	MNR	MNR	1,00E-04	2,42E-04	6,33E-04	-1,26E-02
EP-terrestrial	mol Ne	5,98E-01	2,61E-02	4,99E-02	6,74E-01	2,29E-02	4,10E-03	MNR	MNR	MNR	MNR	MNR	6,34E+00	MNR	MNR	1,11E-03	2,73E-03	1,23E-03	-1,49E-01
POCP (“smog”) ³⁾	kg NMVOCe	1,85E-01	8,13E-03	1,26E-02	2,06E-01	7,32E-03	1,02E-03	MNR	MNR	MNR	MNR	MNR	1,73E+00	MNR	MNR	3,54E-04	7,35E-04	4,43E-04	-4,31E-02
ADP-minerals & metals ⁴⁾	kg Sbe	2,03E-03	3,82E-06	2,46E-05	2,05E-03	3,86E-06	3,89E-07	MNR	MNR	MNR	MNR	MNR	6,86E-03	MNR	MNR	1,87E-07	8,90E-06	1,58E-07	-7,44E-04
ADP-fossil resources	MJ	5,97E+02	2,47E+01	5,05E+01	6,72E+02	2,48E+01	9,19E-01	MNR	MNR	MNR	MNR	MNR	1,56E+04	MNR	MNR	1,20E+00	1,16E+00	7,90E-01	-1,07E+02
Water use ⁵⁾	m ³ e depr.	1,84E+01	1,09E-01	1,72E+00	2,03E+01	1,11E-01	2,18E-01	MNR	MNR	MNR	MNR	MNR	4,27E+02	MNR	MNR	5,36E-03	3,47E-02	4,46E-02	-8,26E-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	3,98E-06	1,86E-07	2,97E-07	4,47E-06	1,90E-07	8,59E-09	MNR	MNR	MNR	MNR	MNR	1,38E-05	MNR	MNR	9,19E-09	1,32E-08	6,50E-09	-6,30E-07
Ionizing radiation ⁶⁾	kBq U235e	2,88E+00	1,17E-01	1,61E-01	3,15E+00	1,18E-01	3,31E-03	MNR	MNR	MNR	MNR	MNR	4,24E+02	MNR	MNR	5,70E-03	7,49E-03	4,17E-03	-6,42E-01

Ecotoxicity (freshwater)	CTUe	2,37E+03	2,20E+01	1,50E+02	2,55E+03	2,23E+01	6,32E+00	MNR	MNR	MNR	MNR	MNR	1,06E+04	MNR	MNR	1,08E+00	5,53E+00	3,71E+02	-3,59E+02
Human toxicity, cancer	CTUh	1,49E-07	5,59E-10	2,40E-09	1,52E-07	5,47E-10	2,85E-10	MNR	MNR	MNR	MNR	MNR	3,48E-07	MNR	MNR	2,65E-11	1,73E-10	7,65E-10	-3,48E-09
Human tox. non-cancer	CTUh	1,99E-06	2,17E-08	4,84E-08	2,06E-06	2,20E-08	1,20E-08	MNR	MNR	MNR	MNR	MNR	1,15E-05	MNR	MNR	1,07E-09	7,31E-09	3,96E-08	-5,99E-07
SQP ⁷⁾	-	1,97E+02	2,79E+01	1,34E+02	3,59E+02	2,85E+01	4,95E-01	MNR	MNR	MNR	MNR	MNR	2,83E+03	MNR	MNR	1,38E+00	1,92E+00	1,20E+00	-2,77E+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	5,26E+01	2,75E-01	3,07E+01	8,36E+01	2,79E-01	3,03E-02	MNR	MNR	MNR	MNR	MNR	3,18E+03	MNR	MNR	1,35E-02	1,64E-01	3,43E-02	-2,10E+00
Renew. PER as material	MJ	2,04E+00	0,00E+00	3,89E+01	4,10E+01	0,00E+00	-3,89E+01	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	-1,28E-01	-1,91E+00	0,00E+00
Total use of renew. PER	MJ	5,46E+01	2,75E-01	6,96E+01	1,25E+02	2,79E-01	-3,89E+01	MNR	MNR	MNR	MNR	MNR	3,18E+03	MNR	MNR	1,35E-02	3,54E-02	-1,88E+00	-2,10E+00
Non-re. PER as energy	MJ	5,84E+02	2,47E+01	4,56E+01	6,55E+02	2,48E+01	9,19E-01	MNR	MNR	MNR	MNR	MNR	1,56E+04	MNR	MNR	1,20E+00	1,16E+00	7,90E-01	-1,07E+02
Non-re. PER as material	MJ	1,64E+01	0,00E+00	2,52E+00	1,90E+01	0,00E+00	-2,52E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	-8,17E+00	-8,26E+00	1,70E-01
Total use of non-re. PER	MJ	6,01E+02	2,47E+01	4,82E+01	6,74E+02	2,48E+01	-1,61E+00	MNR	MNR	MNR	MNR	MNR	1,56E+04	MNR	MNR	1,20E+00	-7,01E+00	-7,47E+00	-1,07E+02
Secondary materials	kg	2,98E+00	6,94E-03	3,04E+00	6,03E+00	6,87E-03	1,10E-03	MNR	MNR	MNR	MNR	MNR	1,61E+00	MNR	MNR	3,33E-04	1,09E-03	2,06E-03	4,78E-01
Renew. secondary fuels	MJ	1,89E-02	6,82E-05	2,18E-01	2,37E-01	6,94E-05	1,81E-05	MNR	MNR	MNR	MNR	MNR	1,31E-02	MNR	MNR	3,36E-06	5,88E-05	1,48E-05	-4,71E-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	3,30E-01	3,16E-03	4,53E-02	3,79E-01	3,21E-03	3,81E-03	MNR	MNR	MNR	MNR	MNR	1,35E+01	MNR	MNR	1,55E-04	1,14E-03	6,29E-04	-4,09E-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	9,34E+00	3,27E-02	1,85E-01	9,56E+00	3,28E-02	3,20E-04	MNR	MNR	MNR	MNR	MNR	5,62E+01	MNR	MNR	1,59E-03	8,15E-03	2,43E-02	-1,74E+00
Non-hazardous waste	kg	9,16E+01	5,31E-01	3,57E+00	9,57E+01	5,39E-01	3,11E+00	MNR	MNR	MNR	MNR	MNR	3,55E+03	MNR	MNR	2,61E-02	4,17E-01	2,21E+00	-3,79E+01
Radioactive waste	kg	1,28E-03	1,65E-04	1,01E-04	1,54E-03	1,66E-04	1,44E-06	MNR	MNR	MNR	MNR	MNR	1,14E-01	MNR	MNR	8,01E-06	4,60E-06	0,00E+00	-2,37E-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	3,28E+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	1,62E-01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	3,15E-01	3,15E-01	0,00E+00	0,00E+00	MNR	MNR	MNR	MNR	MNR	0,00E+00	MNR	MNR	0,00E+00	3,71E+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 ₂ e	5,18E+01	1,63E+00	3,67E+00	5,71E+01	1,63E+00	2,18E-01	MNR	MNR	MNR	MNR	MNR	7,28E+02	MNR	MNR	7,89E-02	4,88E-01	6,18E-01	-1,07E+01
Ozone depletion Pot.	kg CFC-11e	2,88E-06	2,99E-07	3,03E-07	3,48E-06	3,00E-07	1,03E-08	MNR	MNR	MNR	MNR	MNR	3,24E-05	MNR	MNR	1,45E-08	7,92E-09	6,49E-09	-2,53E-07
Acidification	kg SO ₂ e	3,01E-01	6,41E-03	1,24E-02	3,20E-01	5,42E-03	6,79E-04	MNR	MNR	MNR	MNR	MNR	3,56E+00	MNR	MNR	2,62E-04	8,30E-04	2,95E-04	-1,12E-01
Eutrophication	kg PO ₄ ³ e	1,10E-01	1,33E-03	8,82E-03	1,20E-01	1,24E-03	5,06E-04	MNR	MNR	MNR	MNR	MNR	2,74E+00	MNR	MNR	5,97E-05	2,96E-04	2,65E-03	-2,99E-02
POCP (“smog”)	kg C ₂ H ₄ e	2,05E-02	2,35E-04	8,42E-04	2,16E-02	2,12E-04	2,11E-05	MNR	MNR	MNR	MNR	MNR	1,46E-01	MNR	MNR	1,02E-05	3,08E-05	7,15E-05	-5,34E-03
ADP-elements	kg Sbe	2,17E-03	3,70E-06	2,17E-05	2,20E-03	3,74E-06	3,05E-07	MNR	MNR	MNR	MNR	MNR	6,85E-03	MNR	MNR	1,81E-07	8,89E-06	1,46E-07	-7,42E-04
ADP-fossil	MJ	6,06E+02	2,47E+01	5,01E+01	6,80E+02	2,48E+01	9,19E-01	MNR	MNR	MNR	MNR	MNR	1,56E+04	MNR	MNR	1,20E+00	1,16E+00	7,90E-01	-1,07E+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 reference variant of a product family, based on various light management scenarios and power inputs of the luminaires within the same product family

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.

$$\text{Scaled Impact} = \text{GWP}_{\text{case}} * \text{TSF}$$

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
BGP729, BRP729, BPP729, BVP729 LED10-4S/722	910.0	9.9	91.9	0.569	0.569	0.427	0.427	0.313	419.4	314.7	314.7	230.7
BGP729, BRP729, BPP729, BVP729 LED20-4S/722	1800.0	18.3	98.4	1.052	1.052	0.789	0.789	0.579	775.3	581.5	581.5	426.7
BGP729, BRP729, BPP729, BVP729 LED30-4S/722	2700.0	25.7	105.1	1.477	1.477	1.108	1.108	0.812	1088.5	816.6	816.6	598.4
BGP729, BRP729, BPP729, BVP729 LED40-4S/722	3560.0	35.0	101.7	2.011	2.011	1.508	1.508	1.106	1482.1	1111.4	1111.4	815.1
BGP729, BRP729, BPP729, BVP729 LED20-4S/727	1820.0	14.7	123.8	0.845	0.845	0.634	0.634	0.465	622.8	467.3	467.3	342.7
BGP729, BRP729, BPP729, BVP729 LED30-4S/727	2730.0	20.1	135.8	1.155	1.155	0.866	0.866	0.635	851.2	638.2	638.2	468.0
BGP729, BRP729, BPP729, BVP729 LED40-4S/727	3640.0	27.8	130.9	1.598	1.598	1.199	1.199	0.879	1177.7	883.7	883.7	647.8
BGP729, BRP729, BPP729, BVP729 LED50-4S/727	4550.0	35.7	127.5	2.052	2.052	1.539	1.539	1.129	1512.3	1134.2	1134.2	832.1
BGP729, BRP729, BPP729, BVP729 LED60-4S/727	5400.0	43.3	124.7	2.489	2.489	1.867	1.867	1.369	1834.4	1376.0	1376.0	1009.0
BGP729, BRP729, BPP729, BVP729 LED20-4S/730	1800.0	12.9	139.5	0.741	0.741	0.556	0.556	0.408	546.1	409.8	409.8	300.7
BGP729, BRP729, BPP729, BVP729 LED30-4S/730	2700.0	18.1	149.2	1.04	1.04	0.78	0.78	0.572	766.5	574.9	574.9	421.6
BGP729, BRP729, BPP729, BVP729 LED40-4S/730	3560.0	24.3	146.5	1.397	1.397	1.048	1.048	0.768	1029.6	772.4	772.4	566.0

BGP729, BRP729, BPP729, BVP729 LED50-4S/730	4450.0	30.5	145.9	1.753	1.753	1.315	1.315	0.964	1292.0	969.2	969.2	710.5
BGP729, BRP729, BPP729, BVP729 LED60-4S/730	5280.0	37.0	142.7	2.126	2.126	1.594	1.594	1.169	1566.9	1174.8	1174.8	861.6
BGP729, BRP729, BPP729, BVP729 LED20-4S/740	1800.0	12.4	145.2	0.713	0.713	0.535	0.535	0.392	525.5	394.3	394.3	288.9
BGP729, BRP729, BPP729, BVP729 LED30-4S/740	2700.0	17.4	155.2	1.0	1.0	0.75	0.75	0.55	737.0	552.8	552.8	405.4
BGP729, BRP729, BPP729, BVP729 LED40-4S/740	3560.0	23.2	153.4	1.333	1.333	1.0	1.0	0.733	982.4	737.0	737.0	540.2
BGP729, BRP729, BPP729, BVP729 LED50-4S/740	4450.0	29.1	152.9	1.672	1.672	1.254	1.254	0.92	1232.3	924.2	924.2	678.0
BGP729, BRP729, BPP729, BVP729 LED60-4S/740	5280.0	35.4	149.2	2.034	2.034	1.525	1.525	1.119	1499.1	1123.9	1123.9	824.7
BGP729, BRP729, BPP729, BVP729 LED10-4S/827	910.0	9.1	100.0	0.523	0.523	0.392	0.392	0.288	385.5	288.9	288.9	212.3
BGP729, BRP729, BPP729, BVP729 LED20-4S/827	1800.0	17.3	104.0	0.994	0.994	0.746	0.746	0.547	732.6	549.8	549.8	403.1
BGP729, BRP729, BPP729, BVP729 LED30-4S/827	2700.0	24.1	112.0	1.385	1.385	1.039	1.039	0.762	1020.7	765.7	765.7	561.6
BGP729, BRP729, BPP729, BVP729 LED40-4S/827	3560.0	33.2	107.2	1.908	1.908	1.431	1.431	1.049	1406.2	1054.6	1054.6	773.1
BGP729, BRP729, BPP729, BVP729 LED50-4S/827	4400.0	42.2	104.3	2.425	2.425	1.819	1.819	1.334	1787.2	1340.6	1340.6	983.2
BGP729, BRP729, BPP729, BVP729 LED20-4S/830	1800.0	14.2	126.8	0.816	0.816	0.612	0.612	0.449	601.4	451.0	451.0	330.9
BGP729, BRP729, BPP729, BVP729 LED30-4S/830	2670.0	19.9	134.2	1.144	1.144	0.858	0.858	0.629	843.1	632.3	632.3	463.6
BGP729, BRP729, BPP729, BVP729 LED40-4S/830	3560.0	26.7	133.3	1.534	1.534	1.15	1.15	0.844	1130.6	847.6	847.6	622.0
BGP729, BRP729, BPP729, BVP729 LED50-4S/830	4400.0	34.0	129.4	1.954	1.954	1.466	1.466	1.075	1440.1	1080.4	1080.4	792.3
BGP729, BRP729, BPP729, BVP729 LED60-4S/830	5280.0	41.3	127.8	2.374	2.374	1.78	1.78	1.306	1749.6	1311.9	1311.9	962.5
BGP729, BRP729, BPP729, BVP729 LED20-4S/840	1820.0	13.4	135.8	0.77	0.77	0.578	0.578	0.424	567.5	426.0	426.0	312.5
BGP729, BRP729, BPP729, BVP729 LED30-4S/840	2730.0	18.3	149.2	1.052	1.052	0.789	0.789	0.579	775.3	581.5	581.5	426.7
BGP729, BRP729, BPP729, BVP729 LED40-4S/840	3600.0	25.2	142.9	1.448	1.448	1.086	1.086	0.796	1067.2	800.4	800.4	586.7
BGP729, BRP729, BPP729, BVP729 LED50-4S/840	4500.0	32.3	139.3	1.856	1.856	1.392	1.392	1.021	1367.9	1025.9	1025.9	752.5
BGP729, BRP729, BPP729, BVP729 LED60-4S/840	5340.0	39.4	135.5	2.264	2.264	1.698	1.698	1.245	1668.6	1251.4	1251.4	917.6
BGP729, BRP729, BPP729, BVP729 GF LED10-4S/722	850.0	9.9	85.9	0.569	0.569	0.427	0.427	0.313	419.4	314.7	314.7	230.7
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/722	1700.0	18.3	92.9	1.052	1.052	0.789	0.789	0.579	775.3	581.5	581.5	426.7
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/722	2550.0	25.7	99.2	1.477	1.477	1.108	1.108	0.812	1088.5	816.6	816.6	598.4

BGP729, BRP729, BPP729, BVP729 GF LED40-4S/722	3360.0	35.0	96.0	2.011	2.011	1.508	1.508	1.106	1482.1	1111.4	1111.4	815.1
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/727	1700.0	14.7	115.6	0.845	0.845	0.634	0.634	0.465	622.8	467.3	467.3	342.7
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/727	2550.0	20.1	126.9	1.155	1.155	0.866	0.866	0.635	851.2	638.2	638.2	468.0
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/727	3400.0	27.8	122.3	1.598	1.598	1.199	1.199	0.879	1177.7	883.7	883.7	647.8
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/727	4250.0	35.7	119.0	2.052	2.052	1.539	1.539	1.129	1512.3	1134.2	1134.2	832.1
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/727	5100.0	43.3	117.8	2.489	2.489	1.867	1.867	1.369	1834.4	1376.0	1376.0	1009.0
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/730	1700.0	12.9	131.8	0.741	0.741	0.556	0.556	0.408	546.1	409.8	409.8	300.7
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/730	2550.0	18.1	140.9	1.04	1.04	0.78	0.78	0.572	766.5	574.9	574.9	421.6
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/730	3360.0	24.3	138.3	1.397	1.397	1.048	1.048	0.768	1029.6	772.4	772.4	566.0
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/730	4200.0	30.5	137.7	1.753	1.753	1.315	1.315	0.964	1292.0	969.2	969.2	710.5
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/730	4980.0	37.0	134.6	2.126	2.126	1.594	1.594	1.169	1566.9	1174.8	1174.8	861.6
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/740	1700.0	12.4	137.1	0.713	0.713	0.535	0.535	0.392	525.5	394.3	394.3	288.9
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/740	2550.0	17.4	146.6	1.0	1.0	0.75	0.75	0.55	737.0	552.8	552.8	405.4
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/740	3360.0	23.2	144.8	1.333	1.333	1.0	1.0	0.733	982.4	737.0	737.0	540.2
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/740	4200.0	29.1	144.3	1.672	1.672	1.254	1.254	0.92	1232.3	924.2	924.2	678.0
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/740	4980.0	35.4	140.7	2.034	2.034	1.525	1.525	1.119	1499.1	1123.9	1123.9	824.7
BGP729, BRP729, BPP729, BVP729 GF LED10-4S/827	850.0	9.1	93.4	0.523	0.523	0.392	0.392	0.288	385.5	288.9	288.9	212.3
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/827	1700.0	17.3	98.3	0.994	0.994	0.746	0.746	0.547	732.6	549.8	549.8	403.1
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/827	2550.0	24.1	105.8	1.385	1.385	1.039	1.039	0.762	1020.7	765.7	765.7	561.6
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/827	3360.0	33.2	101.2	1.908	1.908	1.431	1.431	1.049	1406.2	1054.6	1054.6	773.1
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/827	4150.0	42.2	98.3	2.425	2.425	1.819	1.819	1.334	1787.2	1340.6	1340.6	983.2
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/830	1700.0	14.2	119.7	0.816	0.816	0.612	0.612	0.449	601.4	451.0	451.0	330.9
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/830	2520.0	19.9	126.6	1.144	1.144	0.858	0.858	0.629	843.1	632.3	632.3	463.6
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/830	3360.0	26.7	125.8	1.534	1.534	1.15	1.15	0.844	1130.6	847.6	847.6	622.0
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/830	4150.0	34.0	122.1	1.954	1.954	1.466	1.466	1.075	1440.1	1080.4	1080.4	792.3

BGP729, BRP729, BPP729, BVP729 GF LED60-4S/830	4920.0	41.3	119.1	2.374	2.374	1.78	1.78	1.306	1749.6	1311.9	1311.9	962.5
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/840	1700.0	13.4	126.9	0.77	0.77	0.578	0.578	0.424	567.5	426.0	426.0	312.5
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/840	2550.0	18.3	139.3	1.052	1.052	0.789	0.789	0.579	775.3	581.5	581.5	426.7
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/840	3400.0	25.2	134.9	1.448	1.448	1.086	1.086	0.796	1067.2	800.4	800.4	586.7
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/840	4250.0	32.3	131.6	1.856	1.856	1.392	1.392	1.021	1367.9	1025.9	1025.9	752.5
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/840	5040.0	39.4	127.9	2.264	2.264	1.698	1.698	1.245	1668.6	1251.4	1251.4	917.6

** 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 reference 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 family.

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 (O_{lum}) and reference service lifetime (RSL) of the product to estimate the final environmental impact. The scaled impact (SI_{pep}) 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 ($PGSF$), 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.

$$\text{Scaled GWP} = \text{GWP}_{\text{case}} * \text{TSF}$$

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
BGP729, BRP729, BPP729, BVP729 LED10-4S/722	910.0	9.9	91.9	0.569	0.219	0.164	0.164	0.12	161.4	120.9	120.9	88.4
BGP729, BRP729, BPP729, BVP729 LED20-4S/722	1800.0	18.3	98.4	1.052	0.205	0.154	0.154	0.113	151.1	113.5	113.5	83.3
BGP729, BRP729, BPP729, BVP729 LED30-4S/722	2700.0	25.7	105.1	1.477	0.191	0.143	0.143	0.105	140.8	105.4	105.4	77.4
BGP729, BRP729, BPP729, BVP729 LED40-4S/722	3560.0	35.0	101.7	2.011	0.198	0.149	0.149	0.109	145.9	109.8	109.8	80.3
BGP729, BRP729, BPP729, BVP729 LED20-4S/727	1820.0	14.7	123.8	0.845	0.162	0.122	0.122	0.089	119.4	89.9	89.9	65.6
BGP729, BRP729, BPP729, BVP729 LED30-4S/727	2730.0	20.1	135.8	1.155	0.148	0.111	0.111	0.081	109.1	81.8	81.8	59.7
BGP729, BRP729, BPP729, BVP729 LED40-4S/727	3640.0	27.8	130.9	1.598	0.154	0.115	0.115	0.085	113.5	84.8	84.8	62.6
BGP729, BRP729, BPP729, BVP729 LED50-4S/727	4550.0	35.7	127.5	2.052	0.158	0.118	0.118	0.087	116.4	87.0	87.0	64.1
BGP729, BRP729, BPP729, BVP729 LED60-4S/727	5400.0	43.3	124.7	2.489	0.161	0.121	0.121	0.089	118.7	89.2	89.2	65.6

BGP729, BRP729, BPP729, BVP729 LED20-4S/730	1800.0	12.9	139.5	0.741	0.144	0.108	0.108	0.079	106.1	79.6	79.6	58.2
BGP729, BRP729, BPP729, BVP729 LED30-4S/730	2700.0	18.1	149.2	1.04	0.135	0.101	0.101	0.074	99.5	74.4	74.4	54.5
BGP729, BRP729, BPP729, BVP729 LED40-4S/730	3560.0	24.3	146.5	1.397	0.137	0.103	0.103	0.075	101.0	75.9	75.9	55.3
BGP729, BRP729, BPP729, BVP729 LED50-4S/730	4450.0	30.5	145.9	1.753	0.138	0.104	0.104	0.076	101.7	76.6	76.6	56.0
BGP729, BRP729, BPP729, BVP729 LED60-4S/730	5280.0	37.0	142.7	2.126	0.141	0.106	0.106	0.078	103.9	78.1	78.1	57.5
BGP729, BRP729, BPP729, BVP729 LED20-4S/740	1800.0	12.4	145.2	0.713	0.139	0.104	0.104	0.076	102.4	76.6	76.6	56.0
BGP729, BRP729, BPP729, BVP729 LED30-4S/740	2700.0	17.4	155.2	1.0	0.13	0.098	0.098	0.072	95.8	72.2	72.2	53.1
BGP729, BRP729, BPP729, BVP729 LED40-4S/740	3560.0	23.2	153.4	1.333	0.131	0.098	0.098	0.072	96.5	72.2	72.2	53.1
BGP729, BRP729, BPP729, BVP729 LED50-4S/740	4450.0	29.1	152.9	1.672	0.132	0.099	0.099	0.073	97.3	73.0	73.0	53.8
BGP729, BRP729, BPP729, BVP729 LED60-4S/740	5280.0	35.4	149.2	2.034	0.135	0.101	0.101	0.074	99.5	74.4	74.4	54.5
BGP729, BRP729, BPP729, BVP729 LED10-4S/827	910.0	9.1	100.0	0.523	0.201	0.151	0.151	0.111	148.1	111.3	111.3	81.8
BGP729, BRP729, BPP729, BVP729 LED20-4S/827	1800.0	17.3	104.0	0.994	0.193	0.145	0.145	0.106	142.2	106.9	106.9	78.1
BGP729, BRP729, BPP729, BVP729 LED30-4S/827	2700.0	24.1	112.0	1.385	0.18	0.135	0.135	0.099	132.7	99.5	99.5	73.0
BGP729, BRP729, BPP729, BVP729 LED40-4S/827	3560.0	33.2	107.2	1.908	0.188	0.141	0.141	0.103	138.6	103.9	103.9	75.9
BGP729, BRP729, BPP729, BVP729 LED50-4S/827	4400.0	42.2	104.3	2.425	0.193	0.145	0.145	0.106	142.2	106.9	106.9	78.1
BGP729, BRP729, BPP729, BVP729 LED20-4S/830	1800.0	14.2	126.8	0.816	0.159	0.119	0.119	0.087	117.2	87.7	87.7	64.1
BGP729, BRP729, BPP729, BVP729 LED30-4S/830	2670.0	19.9	134.2	1.144	0.15	0.112	0.112	0.082	110.6	82.5	82.5	60.4
BGP729, BRP729, BPP729, BVP729 LED40-4S/830	3560.0	26.7	133.3	1.534	0.151	0.113	0.113	0.083	111.3	83.3	83.3	61.2
BGP729, BRP729, BPP729, BVP729 LED50-4S/830	4400.0	34.0	129.4	1.954	0.155	0.116	0.116	0.085	114.2	85.5	85.5	62.6
BGP729, BRP729, BPP729, BVP729 LED60-4S/830	5280.0	41.3	127.8	2.374	0.157	0.118	0.118	0.086	115.7	87.0	87.0	63.4
BGP729, BRP729, BPP729, BVP729 LED20-4S/840	1820.0	13.4	135.8	0.77	0.148	0.111	0.111	0.081	109.1	81.8	81.8	59.7
BGP729, BRP729, BPP729, BVP729 LED30-4S/840	2730.0	18.3	149.2	1.052	0.135	0.101	0.101	0.074	99.5	74.4	74.4	54.5
BGP729, BRP729, BPP729, BVP729 LED40-4S/840	3600.0	25.2	142.9	1.448	0.141	0.106	0.106	0.078	103.9	78.1	78.1	57.5
BGP729, BRP729, BPP729, BVP729 LED50-4S/840	4500.0	32.3	139.3	1.856	0.144	0.108	0.108	0.079	106.1	79.6	79.6	58.2
BGP729, BRP729, BPP729, BVP729 LED60-4S/840	5340.0	39.4	135.5	2.264	0.148	0.111	0.111	0.081	109.1	81.8	81.8	59.7

BGP729, BRP729, BPP729, BVP729 GF LED10-4S/722	850.0	9.9	85.9	0.569	0.234	0.176	0.176	0.129	172.5	129.7	129.7	95.1
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/722	1700.0	18.3	92.9	1.052	0.217	0.163	0.163	0.119	159.9	120.1	120.1	87.7
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/722	2550.0	25.7	99.2	1.477	0.203	0.152	0.152	0.112	149.6	112.0	112.0	82.5
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/722	3360.0	35.0	96.0	2.011	0.209	0.157	0.157	0.115	154.0	115.7	115.7	84.8
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/727	1700.0	14.7	115.6	0.845	0.174	0.13	0.13	0.096	128.2	95.8	95.8	70.8
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/727	2550.0	20.1	126.9	1.155	0.159	0.119	0.119	0.087	117.2	87.7	87.7	64.1
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/727	3400.0	27.8	122.3	1.598	0.164	0.123	0.123	0.09	120.9	90.7	90.7	66.3
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/727	4250.0	35.7	119.0	2.052	0.169	0.127	0.127	0.093	124.6	93.6	93.6	68.5
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/727	5100.0	43.3	117.8	2.489	0.171	0.128	0.128	0.094	126.0	94.3	94.3	69.3
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/730	1700.0	12.9	131.8	0.741	0.153	0.115	0.115	0.084	112.8	84.8	84.8	61.9
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/730	2550.0	18.1	140.9	1.04	0.143	0.107	0.107	0.079	105.4	78.9	78.9	58.2
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/730	3360.0	24.3	138.3	1.397	0.146	0.109	0.109	0.08	107.6	80.3	80.3	59.0
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/730	4200.0	30.5	137.7	1.753	0.146	0.109	0.109	0.08	107.6	80.3	80.3	59.0
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/730	4980.0	37.0	134.6	2.126	0.149	0.112	0.112	0.082	109.8	82.5	82.5	60.4
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/740	1700.0	12.4	137.1	0.713	0.147	0.11	0.11	0.081	108.3	81.1	81.1	59.7
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/740	2550.0	17.4	146.6	1.0	0.137	0.103	0.103	0.075	101.0	75.9	75.9	55.3
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/740	3360.0	23.2	144.8	1.333	0.139	0.104	0.104	0.076	102.4	76.6	76.6	56.0
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/740	4200.0	29.1	144.3	1.672	0.139	0.104	0.104	0.076	102.4	76.6	76.6	56.0
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/740	4980.0	35.4	140.7	2.034	0.143	0.107	0.107	0.079	105.4	78.9	78.9	58.2
BGP729, BRP729, BPP729, BVP729 GF LED10-4S/827	850.0	9.1	93.4	0.523	0.215	0.161	0.161	0.118	158.5	118.7	118.7	87.0
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/827	1700.0	17.3	98.3	0.994	0.205	0.154	0.154	0.113	151.1	113.5	113.5	83.3
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/827	2550.0	24.1	105.8	1.385	0.19	0.143	0.143	0.105	140.0	105.4	105.4	77.4
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/827	3360.0	33.2	101.2	1.908	0.199	0.149	0.149	0.109	146.7	109.8	109.8	80.3
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/827	4150.0	42.2	98.3	2.425	0.205	0.154	0.154	0.113	151.1	113.5	113.5	83.3
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/830	1700.0	14.2	119.7	0.816	0.168	0.126	0.126	0.092	123.8	92.9	92.9	67.8

BGP729, BRP729, BPP729, BVP729 GF LED30-4S/830	2520.0	19.9	126.6	1.144	0.159	0.119	0.119	0.087	117.2	87.7	87.7	64.1
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/830	3360.0	26.7	125.8	1.534	0.16	0.12	0.12	0.088	117.9	88.4	88.4	64.9
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/830	4150.0	34.0	122.1	1.954	0.165	0.124	0.124	0.091	121.6	91.4	91.4	67.1
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/830	4920.0	41.3	119.1	2.374	0.169	0.127	0.127	0.093	124.6	93.6	93.6	68.5
BGP729, BRP729, BPP729, BVP729 GF LED20-4S/840	1700.0	13.4	126.9	0.77	0.159	0.119	0.119	0.087	117.2	87.7	87.7	64.1
BGP729, BRP729, BPP729, BVP729 GF LED30-4S/840	2550.0	18.3	139.3	1.052	0.144	0.108	0.108	0.079	106.1	79.6	79.6	58.2
BGP729, BRP729, BPP729, BVP729 GF LED40-4S/840	3400.0	25.2	134.9	1.448	0.149	0.112	0.112	0.082	109.8	82.5	82.5	60.4
BGP729, BRP729, BPP729, BVP729 GF LED50-4S/840	4250.0	32.3	131.6	1.856	0.153	0.115	0.115	0.084	112.8	84.8	84.8	61.9
BGP729, BRP729, BPP729, BVP729 GF LED60-4S/840	5040.0	39.4	127.9	2.264	0.157	0.118	0.118	0.086	115.7	87.0	87.0	63.4

** 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 highlighted 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 ²⁾	kg CO _{2e}	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 multiplying for the Finland value from the same table (FINLAND = 2,70E-01).

Thus, the calculation of this example would be:

$$\text{New B6 GWP tot for Finland} = (4,06E+02 / 3,96E-01) \times 2,70E-01 = 2,76 E+02$$

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